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Do We Need More Beekeepers?

By C. L. Corkins, Apiarist, University of Wyoming

THIS question is a pertinent one at this time for two reasons: First, it has been widely suggested that our marketing situation would be materially improved if we had more beekeepers and more honey. Those who advance this view seem to hold the opinion that there is not now sufficiently large blocks of honey available to interest large distributors in our product. Therefore we are not getting the national advertising and national distribution that would put our product over in the trade.

Second, it is my opinion that we are about to emerge into a period when beekeepers generally will be giving serious consideration to expansion of their business. We have been passing through a terrible siege of depression. Prices have been low. Yields have not compensated the loss. Disease has taken a terrific toll in our apiaries. Our "esprit de corps" has been very low. This condition is reflected in every organization appertaining to the honey industry. Educational and business institutions alike have suffered. It has been a period of retrenchment. We have tightened up on our production methods. We have cut out needless help and needless practices. We have given serious consideration to the problem of lowering cost of production. I have observed commercial beekeeper after commercial beekeeper laying off the usual help of the boom days of the World War. Each man is spreading his time and labor to cover the manipulation of more and more colonies of bees. Perhaps production per colony has suffered slightly, but cost of production per pound of honey has gone down. If this were not so, commercial beekeeping could not have weathered the storm of low prices which have prevailed for the past three years. And, after all, it is the cost of production, and not the yield

per colony, that makes the difference between success and failure in beekeeping, or any other business.

During this zero hour in beekeeping we have another natural reaction from such a depression. We have seen the producers turn more and more attention to another phase of the economics of beekeeping, namely, marketing. Emergency forces us from a condition of content. We look for new avenues of escape from economic failure. The smaller beekeepers of the East have developed roadside markets to perfection. The commercial beekeepers of the West formed the Mountain States Honey Producers' Association, which, literally, started marketing cooperatively honey from eight states overnight. Even with low priced honey at their command, large honey distributing agencies of the East united their interests into one common body for mutual protection and benefit. Thus we have, born out of the period of depression, Preserves and Honey, Inc.

These facts are presented to call attention to inevitable results of a crisis—new lessons learned and advancement attained out of adversity. It is a common story recapitulated time on end in all walks of life. But, oh, how hard it is to learn and profit by the moral of the lesson! We have now learned how to retrench. We have lowered cost of production. We have bettered our marketing status. We have curtailed expansion in the industry. We have now passed up to the zero hour before the dawn. We stand ready now to emerge into a new era of beekeeping and greater prosperity if!... We will profit by our experience in depression if we adhere to the economic principles of cost of production, the balance between supply and demand and the methods of efficient distribution and

advertising which we have been compelled to learn since 1923.

The past decade has marked marvelous strides in the science of the production of honey. If we as beekeepers read the signs of the times correctly, the next decade should be characterized by similar advancement in the economic principles of production and marketing of honey. To this problem leaders in beekeeping, both locally and nationally, properly should address themselves, as is their evident intent. This is true because, as previously indicated, there is every sign that a better era in beekeeping is at hand. The individual beekeeper who emerges from the old into the new era of beekeeping will be faced with two outstanding facts: his cost of production is lower and the honey market is stiffening, with prices gradually trending upward. What is his natural reaction? Why, most certainly to take advantage of the times and expand in order to "make hay while the sun shines." From the sidelines, others, not commercial producers, will look on and decide to climb on the band wagon. Which brings us back to the original question: Do we need more beekeepers and an increase in production?

We have talked of the law of supply and demand so long that it has become commonplace. We sometimes find that the old adage, "familiarity breeds contempt," is all too true, much to our sorrow. I cannot help but feel that those who preach the doctrine of expansion in the beekeeping business have felt that this good old doctrine of the science of economics does not necessarily obtain in the honey industry. It therefore seems mandatory that concrete illustrations be brought forth and pondered seriously.

No better illustration of the workings of the law of supply and demand can be held forth than the history of

the potato industry in the United States. You may feel that a lesson drawn from the potato business for the benefit of beekeepers is far-fetched, but the economic principles, or, shall we say, laws, are strikingly similar.

I shall draw my illustration first from the potato industry because the records are so complete and the story so simple. The statistics are the most accurate available, having been drawn from the U. S. Department of Agriculture reports. In 1919 the acreage and yield was low, the price way above the cost of production. The acreage was increased 3,657,000 in 1920. The yield was only 1.4 bushels per acre more, but the price dropped to \$1.14½ per bushel. The production increased 25 per cent and the price decreased 28 per cent. A more striking contrast is found between the years 1921 and 1922. In 1922 the yield was increased, because of favorable prices the previous year, 25 per cent; the price dropped 47 per cent. Then, if we contrast the two years of the highest and lowest prices, we find that during the year of lowest price the acreage went up 42 per cent; the price came down 72 per cent.

The yield per acre had comparatively little effect upon the total production and the price as compared to acreage fluctuation. From this story two lessons stand out as of paramount importance: First, as acreage went up, prices went down. As acre-

age went down, prices went up. Second, as total production went up, the prices did not go down in the same relative proportion. **The tendency always is for the percentage of decrease in price to far outstrip the percentage of increase in production.** This latter principle is an economic law recognized in all business, but have beekeepers given it any serious thought?

Now, to bring this lesson a little closer home. Please pardon me for referring to an experience still painfully fresh in the memories of all commercial beekeepers. I refer to the honey marketing debacle that followed the production season of 1926. The national honey crop was slightly above normal. Word got out that the "backwoods" were full of honey that could not be sold. Prices went down, down, until they hit the bottom at 5 cents for car lots of the choicest western white and water-white extracted honey. That was the condition which obtained when the Mountain States Honey Producers' Association was organized in February, 1927. Not a very favorable situation for a young and ambitious cooperative to face when the beekeepers were "broke." A survey was immediately conducted and it was determined that the "backwoods" were not so full of honey as our moral stampede had led us to believe in this year of a fairly good honey crop. Prices had gone down way beyond a comparable upward trend

of production. The fact that every pound of the holdover commercial honey crop in the West from the 1926 production was moved at ever-increasing prices through the association and was off the market before the 1927 crop came on bears silent testimony to this fact.

It is to be regretted that full and complete statistics are not available in the production and price conditions of the honey crop, or other generally similar examples could doubtless be drawn.

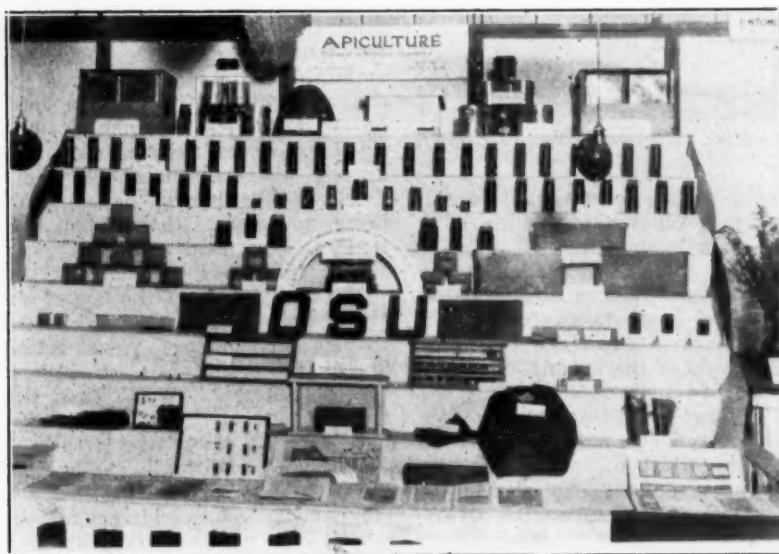
But, you may complain, the potato and the honey industry are not analogous in all phases of the marketing problem. Potatoes are a staple crop and the amount that can be used year in and year out cannot be materially changed. Honey is considered in the class of luxury food products, and its consumption can be increased by intensive advertising, thus giving opportunity to hold the price up through a period of expansion by stimulating additional consumption. Moreover, one can get into and out of the potato business faster than the honey business.

I shall not debate against the possibility of the stimulation of greater consumption through advertising. It is the great open road "out of the woods" for the honey industry. It is the reason I look with thanksgiving upon the organization of the American Honey Institute, the incorporation of Preserves and Honey, and the greater activity in the field of co-operative marketing. But in the face of this high hope the "caution signal" should be flashed.

Let us turn our attention to the fruit industry of California. There we have a product in a similar class with honey. There we have a history of organization for advertising and orderly marketing to produce some great lessons for our guidance. There are no cooperative marketing agencies in the United States which have been more successful in business operation or have exerted a more profound influence upon the food habits of the nation. But they failed to figure out a modern system of "four-wheel brakes" applied to the problem of increase in production. We should look cold-bloodedly at the results.

Here are some unbiased facts developed by exhaustive research carried on by the University of California: During the years of 1920 to 1923, when the farmers of the Middle West and West were in the greatest of distress, the price of California fruits hit its peak and prosperity reigned in the fruit business. Between 1920 and 1925 the acreage devoted to figs was increased 156 per cent. During the past five years the

O. S. U. Students Give a Display at Ohio State Fair



The above exhibit was put on by the beekeeping students at Ohio State University under the supervision of W. E. Dunham, Instructor in Apiculture at that institution. Honey exhibiting is one of the phases emphasized in the beekeeping course offered at the university. The public showed much interest in this exhibit as well as in that put on by Virgil N. Argo, who is the Extension Specialist in Beekeeping.

price of figs has decreased 44 per cent. The plum acreage was increased 46 per cent; the price decreased 33 per cent. Peach acreage went up 46 per cent; the price went down 30 per cent. The acreage devoted to pears was raised 48 per cent; prices dropped 20 per cent. Table grapes were increased 130 per cent; the price fell 64 per cent. Raisin grape acreage went up 66 per cent, and, despite the plea for our daily iron, the price went down 33 per cent. And we could go on through the greater part of the California fruit industry and tell the same story. Or, better yet, visit, as I did, the fruit growing sections of California and the story will be told in another manner, not by statistics, but by the morale of the fruit growers themselves. This, despite every conceivable manner of national advertising and propaganda for which millions and billions of dollars have been spent. Why? Because they did not heed the lessons learned in their time of distress. They could not stand success brought about by orderly marketing and national advertising, because they wished to reap a still richer harvest of their reward. Primarily because they did not heed the economic principle of the danger of increased acreage and overproduction.

It is my sincere hope that out of the experiences which beekeepers have passed through since 1921 the following lessons will have been well learned:

1. That increase in production, or the keeping of more bees, should not be attempted except under the expert guidance of national and state authorities on the economics of the industry or by the managers of cooperative or semi-cooperative honey marketing organizations who have full knowledge and good judgment in the adjustment of supply to demand.

2. That every beekeeper will continue to pay as much attention to cost of production and efficient management in the future as he has during the past several years.

3. That those beekeepers who have joined cooperative or semi-cooperative marketing organizations under pressure of economic self-preservation will fully realize the imperative importance of them in the economic scheme of today, and not pull out when the "sun is shining brighter" for the individual who has selfishly reaped the rewards of organization without paying the "fidler."

4. That the beekeeper of tomorrow will interest himself as intimately in education and research on the economic principles of the honey industry as he did yesterday, and

continues to do today, in the pure science of honey production.

5. That the beekeepers who have forsaken county, state and national educational beekeepers' organizations during the period of distress will realize their place in the economic system of things, despite expansion in cooperative marketing, and return again to the support of the associations which have been preeminently the greatest givers of the harvest which we hope to reap in the years to come.

Weights of Bee Vary with Age

Prof. Dr. J. Langer (Deutsche Imker, September, Czechoslovakia) has weighed bees of various ages. He finds that a newly emerged bee weighs 0.1059 grammes; bee 8 days old, 0.1538 grammes; bee 18 days old, 0.0986 grammes; nectar collector, 0.0820 grammes; water fetcher, 0.763 grammes. Thus a nurse bee is about twice as heavy as an old forager.

A. D. B.

INTERESTING PERSONALITIES

James A. Stone



Among the best known Illinois beekeepers is James A. Stone, of Farmingdale, near Springfield. Stone has been a beekeeper since 1867, and although he is now 86 years of age, he still maintains his interest. He has spent his lifetime on the old homestead located on the hard road west from the state capital. The house sets well back from the road among fine old shade trees which give the place a distinguished appearance. The sign offering honey for sale calls attention to the fact that bees are an important line on that farm.

The fourth generation of the Stone family is now living in the home that has sheltered Stones for many years. The father of our friend entered the

land from the Government in 1831, when the region was a wild prairie.

Living so near to Springfield, Stone knew Abraham Lincoln in the days when he was a country lawyer, and was among the neighbors who shook his hand after he had been elected to the highest office within the gift of American people. Later Stone spent some time in the Union army, returning to his farm after the close of the war.

For twenty-nine years James A. Stone served as Secretary of the Illinois Beekeepers' Association, during which time he edited eighteen volumes of the annual reports of the organization. In these reports is found a permanent record of the details of association activities during an important period.



EDITORIAL

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Leave the Bees Alone in Winter

"I am watching my bees very closely and I find that many of them are dying." That is a very common report from a beginner. He is so anxious about the wintering of his bees that he disturbs them every day to see how they are doing.

Leave your colonies alone in January. If they have enough to live and are fairly well sheltered, you can do nothing more when the weather is very cold. Disturbing the bees is causing them to stir, even if the disturbance is insignificant in your opinion. Each time that the bees are disturbed some of them leave the cluster and they usually become chilled before they can regain their quiet and unite with the cluster again.

The only time when it is excusable to disturb the bees in winter is when a fair, warm day opens and they have been confined to the hive a long time. They may be benefited by a flight, if the day is warm enough, and may change their location to a part of the hive containing more honey. Also, if there is snow on the alighting board and the bees are wanting to take a flight, it is advisable to remove it.

Some people close up the hives on a warm day, when there is snow on the ground, for fear that some of them will get lost in the snow. There is no doubt that some will be lost, but it is better to lose a few dozen bees than to keep them confined when they want to fly. We have often noticed that the colonies which fly freest in snow time, when a warm day comes, are the ones that winter best. It is easy to understand this, for the colonies that get a flight empty their bowels and get ready to stand another spell of cold weather, while those that do not venture out at all are either too weak or in a cold position and have difficulty in keeping warm. The few dozen bees that get lost in the snow, from a strong colony, are of little importance, if the bulk of the cluster gets refreshed.

Colonies that are entirely buried in the snow are usually so well sheltered by it that they do not suffer, and it is better to leave them alone than to disturb them, if a warm day happens to come that is not sufficiently warm to melt the snow away. Usually there is plenty of ventilation coming to them from under the snow.

In the cellar, the same advice may be given. Do not disturb the bees. If they are a little restless, change the temperature. Usually if a warm day comes outside, the bees in the cellar will be likely to notice it by a change in their own atmosphere and may become restless. But if they have good, ripe honey, no fruit juices and no honeydew, they will pull through even with six months of confinement. Leave them alone; see to it only that the temperature of the cellar is right.

How Will Honey Be Sold in the Future?

On the crop and market page of this issue, M. G. Dadant calls attention to the better sale of honey in carload lots this year than in a local way. Naturally, the report of this year's sale cannot in itself prove conclusively what may happen a year hence, when we may be

confronted with different conditions, and perhaps larger surpluses in the carlot producing areas.

The fact is, however, that honey prices have tended to rise on carload lots, whereas in a retail way there has been no such strengthening, and in some instances, on the contrary, a weakening. Perhaps this has been caused by the volume of export sales, perhaps by the increased activity of the newly formed combine, "Preserves and Honey"; likely by both. These two agencies must have carlot shipments to be economical.

And now comes the pooling of several cars of honey by Louisiana beekeepers into New Orleans, a blending of the same, and carlot shipments in turn. New Zealand follows a similar course in her export shipments.

Will markets in the future become wholesale or jobbing markets, to the gradual diminution of our present system, where many a producer becomes his own jobber, wholesaler, packer, and retail distributor, with only a vague idea of all that it is costing him? Just now producers dispose of their crops direct to jobber, direct to consumer, and every stage between.

We can only welcome the change if it is in process of the making. We all remember when country butter was the only butter available, at varying prices and with varying quality. Now this has gone largely into the hands of specialists. We sell our cream at wholesale and go about our other business, leaving it to someone else to prepare it for market, in the form of a high grade creamery butter. Such as is not of sufficient quality for the table is disposed of to advantage in another way and does not come into competition with the better product.

Let not the reader presume that next year all honey will be lumped, sold in carloads, and the whole job disposed of. Not for many years could such an Utopia for honey be brought about.

But, we ask, is there not a possibility that this may ultimately occur, and may we not with profit think along these lines?

Honey to the South Pole

Anyone who doubts the activity of the President of the American Honey Institute and the value of that organization will be interested in Mr. Barnard's report of how our product came to be included in the stores of Commander Byrd's expedition.

A good friend and subscriber advised the American Bee Journal that beekeepers were missing an opportunity, and that the men of Byrd's expedition were also, if honey were not included in the concentrated sweets taken along on that expedition. The American Bee Journal immediately got in touch with Dr. Barnard.

Byrd had already sailed from the United States. This did not deter Barnard. He believes in cooperation of beekeepers. His next move was to cable the New Zealand association of the lost opportunity. The Byrd authorities were interviewed there, they saw the desirability of using honey and it was included.

Back came a cable to America giving the information. Barnard was too much of a publicist to let it rest there. The news went to the news agencies "pronto." And that is the story of how many of us picked up our Chicago, New York, or San Francisco paper and read the dispatch giving the news to the world.

Such cooperation and such activity cannot but have its sequel. Such mentions of honey and its use under such conditions cannot but give a place to a sweet that we think is unsurpassed.

What we need now is more such ideas and cooperation. We are all ready and always have been to do our bit

for furthering publicity for honey. The big drawback has been that we, individually, have not, or could not, act on our impulses, and the publicity was left undone. Association meetings, field meets, prominent sales of honey, or visits of beekeepers have gone unnoticed when news agencies and press associations would have been glad to disseminate the information.

Not that we can expect the American Honey Institute now to take up all our publicity and information activities, but we can cooperate closely with Dr. Barnard, and at the same time not allow ourselves to "miss a trick" when it comes to our own publicity in a smaller way.

Disease Eradication Work in California

We have before us, a summary of apiary inspection work of the State Entomologist of California, Mr. Frank C. Todd, covering the period of January 1 to November 1, 1928, as well as the monthly bulletin of the California Department of Agriculture, volume 17, number 9, in which are contained a number of county reports concerning the bee inspection work since the new law was instituted on January 1, 1928.

Mr. Todd reports that their apiary registration has exceeded all expectations; in fact the number of colonies reported is almost double what had been previously anticipated.

During this period there have been 9,540 apiaries registered, with total number of colonies of 326,967.

Of this number, 61 per cent of the colonies and 70 per cent of the apiaries have been inspected during the present year, and a total of American foulbrood discovered of 5 per cent.

In the same period about 66 2/3 per cent of the colonies found infected have been burned and 33 1/3 per cent treated under very careful supervision of state and county inspectors and horticultural commissioners.

An interesting part of the report is the large number of migrations reported. These represent those coming into California, those going out of California, inter-county migration and migration within the same county. The total of all figures represents 1650 apiaries moved, with a total of 110,143 colonies, or over seventy colonies per apiary.

We have reports during the year of the very meager crop of honey produced by California beekeepers, and yet the same beekeepers reporting on 326,000 colonies of bees have a total production for the season of about eight million pounds of honey. Not a small production, and in fact a large one for most of the states of the Union.

However, it is still a small crop for California, and a small percentage of what would be produced in a normal year.

Mr. Todd calls attention to one point which is of very great importance, and that is the fact that fruit growing sections of California need bees badly. Under the old system it was a question of whether they should be imported into the orchards or not, owing to the possibilities of recurring infection.

Under the new law practically all movements are under the supervision of, or at least with the knowledge of, the county and state inspectors, which assures practically clean apiaries being moved from one point to another.

Our own opinion of the inspection work is that the Californians have accomplished wonderful things during the ten months the new law has been in effect. We should not, of course, minimize the work which was done previously and the advantage of the already existing inspection force, which was immediately ready to cooperate with the new system. Naturally some mistakes have also been made.

Mr. Todd, in his report, is gratified and pleased at the cooperation of existing associations and inspectors, as well as with the large majority of the beekeepers.

In the past we have had much criticism of importing states, from the fact that disease-infected honey was being imported from the large honey producing areas. Rapidly this condition is being removed, owing to the fact that, just now, the large producing and shipping states are becoming most active in disease eradication work. Undoubtedly this will mean a minimizing of the spread of disease.

It will be interesting to follow California's work through another year to see how the follow-up campaigns materialize and how rapidly the percentage of infection can be decreased.

Honey Gathering Wasps

A paper on the "Honey Gathering Habits of Polistes Wasps," by Dr. Phil Rau, published in the June number of Biological Bulletin, has just come to our attention.

Doctor Rau has found that wasps store small quantities of honey in their paper cells to a much larger extent than has been supposed. By examination of a large number of nests of Polistes wasps, he found small drops of honey in a considerable proportion of them at different seasons.

Of special interest is a quotation from Wheeler in which he concludes that the habit of honey storing among wasps is a vestigial instinct and that the habit was formerly much more common than now. The following quotation from Wheeler states his apparent position:

"Not only has the honey-storing instinct of our northern Polistes been reduced to a feeble and useless vestige by the adaptation of this insect to life in the temperate zone, but the nest-building instincts, when compared with those of the allied tropical wasps, show unmistakable signs of similar degeneration."

Apparently Rau does not altogether agree with Wheeler in his conclusions, for he says:

"The evidence seems to show that this instinct is not vestigial, but functional, and is probably necessary for the survival of the young."

It is perhaps unbecoming for the writer of this review to disagree with such a recognized authority as Doctor Wheeler, but it seems to me that if we are to accept the opinion of the evolutionists that the vespoids arose from the parasitic hymenoptera and that bees in turn have developed from primitive vespoids, the honey gathering habit must be later than that of meat eating.

The honeybee is generally recognized as highest in the scale. It is the only one of the group which has learned to store honey in sufficient quantity to carry the entire colony through the winter.

To a mere novice like the writer, it appears that Polistes must be a more primitive wasp than Nectarina, which has learned to store a quantity of honey in its paper cells. Nectarina, in turn, is more primitive than the honeybee, which has abandoned insect food entirely, and depends upon pollen and nectar which can be stored up against the period of dearth.

Since it is all guesswork at best, perhaps one guess is as good as another. Why not then conclude that when Polistes brings a drop of nectar to her nest to serve as food on a rainy day, it is the first step looking toward the time when a large family shall store sufficient honey to enable them to warm the nest by muscular activity and find food ready to carry them through the long winter months?

I can hardly reconcile the ideas that Polistes has degenerated from a honey-storing insect, and that the honeybee has developed from an insect-eating one.

F. C. P.

"The Story of Sugar from Flowers"

This is the title of an article appearing in the October issue of the Home Economist by Dr. H. E. Barnard, President of the American Honey Institute. The Home Economist is published in New York City, in the interest of home economics workers in foods, health, hygiene, nutrition and allied subjects, so it goes to an important class of people, particularly those who are in a position to make use of such material as that prepared by Dr. Barnard.

It is an excellent story, giving the history of honey, its food value, its natural properties, and simple ways of use which would appeal to the type of subscriber to this important paper.

The importance of propaganda of this sort cannot be overestimated. It is bound to bring about a change, and no one is in a better position than Dr. Barnard to know just where to place such articles.



AMONG the beekeepers of the Pacific Northwest there is perhaps none more worthy of admiration than Julian Joubert, of Enumclaw, Washington. With both of his legs paralyzed below the hips since birth, Joubert has spent his life on crutches, and yet, regardless of this terrible handicap, is now, at the age of 31, one of the most optimistic and enthusiastic of the honey producing fraternity.

Since, at the age of 15, Joubert



Resembling a ship's lifeboat davit, Joubert's hoist, mounted on the platform of his car, makes possible his work with bees.



Joubert's cabin and one corner of his apiary. The hives are arranged to permit the car to be driven behind them.

captured his first swarm of bees, he has been intensely absorbed in the study of the romantic life cycle and interesting activities of the little honey gatherers, but it was not until he was about 25 that he determined to make beekeeping his life work. Of a naturally mechanical turn of mind, Joubert first entered the machinists trade, but found that indoor work undermined his health. Now beekeeping not only keeps him out-of-doors, but it fits perfectly his idea of an ideal occupation.

Joubert's bent toward mechanics, coupled with the necessity for making his brains do the work normally required of legs, has resulted in the

Grit, Determination and Brains!

This Washington Beekeeper Has Them All

By Natt Noyes Dodge

Julian Joubert, beekeeper and machinist. Although unable to walk without the aid of crutches, he does all of the work connected with producing and marketing his honey crop with the help of his Ford car and devices which his ingenuity and handiwork have enabled him to construct.

making of numerous mechanical contrivances which enable him to carry on the routine work of bee yard and honey house with remarkable ease and rapidity. He is the owner of a Ford model T roadster readily convertible into a platform truck, and by means of this car he lifts the upper stories from the hives so that he may examine the brood nest, moves his apiary to more productive pastures, takes himself from place to place, even short distances as from the bee yard to the honey house and return, operates his extractor, hauls equipment to the bee yard and full supers to the honey house, carries part of his crop in five-gallon cans to the city, and drives about from store to store so that he may call upon grocers and dispose of the part of his crop packed in retail containers. Joubert and his Ford are as inseparable as a man and his devoted dog—more so, in fact, as few dogs will remain long in a bee yard.

At the rear of the platform on the back of his car Joubert has rigged up a device similar to a ship's lifeboat davit. It consists of a piece of heavy pipe curved at the top and set



Joubert's working position. Note the supers lifted aside by the derrick

into a piece of slightly larger pipe built into the platform and securely braced. At the upper and outer end of this arm is fastened a block-and-tackle equipment with an ingenious arrangement which hooks into the hand-holds at the ends of a hive body. At work in the bee yard, Joubert drives the car behind a row of hives, stopping at the one he desires to examine. Climbing out, he braces himself with the platform and swings the davit so that the end is directly over the hive. Pulling down the block and chain, he hooks the grapples into the hand-holds in the super to be lifted. Then, seating himself beside the hive, the position in which he always works, he brings his smoker into action, at the same time pulling down on the rope operating the block-and-tackle, thereby raising the supers. When these are a foot or two above the brood nest they are automatically held by a device locking the pulleys, or, if Joubert expects to spend some time at this colony, he raises the supers to a level with the platform, swings the davit, and lowers them to the platform, thereby preventing the bees from coming out and bothering him unnecessarily. He then has both hands free to operate his hive-tool and smoker and to manipulate the frames. He finds it necessary to be particularly careful with his smoker, as he once left it beside the hive as he worked with a quiet colony and burned a hole in his shoe and had a bad blister on his foot (in which there is no feeling) before the odor of burning leather attracted his attention.

By arranging his hives so that they are all accessible to the car, Joubert is enabled, with the aid of his hoist, to keep constant check on the condition of each and every colony, to place and remove supers, and to move entire colonies with ease. His home location is ideal for wintering and spring brood rearing, being in a protected mountain valley, but is not of the best for summer, and so he finds it necessary to move the entire apiary in June to a fireweed location, where the surplus is gathered. By means of the car the full supers are hauled to the honey house situated on the hillside, and unloaded on a platform built to be at the same height as the floor of the truck. The supers are unloaded onto a flat floor truck and pushed inside the honey house, where they are stacked.

When extracting time comes, the car again plays a big part. It is driven close to the side of the honey house, and the hood removed. With the fan belt taken off, a longer belt is slipped over the fan-belt pulley,

passed through a window in the side of the honey house, and attached to the pulley of the extractor inside. With the engine running slowly, and a hose bringing water from the hillside spring to keep it from overheating, Joubert extracts his crop. The honey flows from the extractor through a pipe in the floor into a tank below. From this Joubert runs it into containers which are loaded onto the car when it is driven to the lower door of the building.

Not only are Joubert's beekeeping methods unique, but his home and its surroundings are equally picturesque. The log cabin in which he lives was constructed, a mile from any traveled road, by moonshiners. These worthies were finally captured and are now enjoying an enforced vacation at the Washington state penitentiary at Walla Walla. While on a fishing trip, Joubert discovered the hidden entrance of the roadway leading to the cabin and forced his car to follow it. The location, a wild, narrow valley surrounded by the densely forested slopes of the Cascade Mountains, appealed to him and he looked up the owners of the land on which the cabin stands. He found them glad to let him occupy the cabin, as it is in a valuable timber area where the presence of a person to report the starting of a forest fire might prevent serious loss. With a railroad iron and a plank drag fastened behind his car, Joubert smoothed and graded the trail leading from the cabin to the main road until it is now comfortably passable in all weather.

Joubert provides himself with a winter occupation by manufacturing hive bodies and frames for himself and other beekeepers living near Enumclaw. His mechanical ingenuity stood him in good stead in devising machinery for cutting out and dovetailing sides and ends for hives. A smoothly running device, constructed of speedometer gears intermeshing, enables him to drill the four holes in frame end bars with one operation. He is also a leader among beekeepers, being a member of the Western Washington Beekeepers' Association, a honey marketing cooperative recently affiliated with the Mountain States Honey Producers' Association, and was at one time president of his local county beekeepers' association. He is a familiar figure at association meetings and summer field gatherings, and his ideas are held in high esteem by other beekeepers.

Not only is Joubert a good beekeeper, but he is interested in the welfare of other bee men particularly through the advancement of the honey industry from both the producing and marketing standpoints.

He has tried out the newly developed formalin gas method of comb sterilization and is eagerly awaiting the coming of springtime so that he may check on its efficacy. His interest in cooperative marketing is more than a passing one. He is working on a method of interior hive heating by electricity with the idea of producing queens early in the spring, and is making an intensive study of Dr. Watson's method of instrumental queen mating. During the winter of 1927 he took a two months' trip in his car, visiting beekeepers in Oregon, California, and Arizona, so that he might study their equipment and methods. At present he is laying plans to make a trip to the East in 1929 to take the beekeeping course under Dr. Phillips at Cornell University.

Washington.

Comparison and Food Value of Pollen

At the **Wanderversammlung** (annual meeting of all German-speaking beekeepers) at Cologne last August, E. Elser, scientific assistant at the institute at Liebefeld, Berne, Switzerland, read an important paper on the chemistry of pollen. He has analyzed the pollen of a considerable number of plants and finds that the various kinds differ very much in their content of water and dry substance (including fat, albuminous matter and sugars). The invert sugar found is, of course, largely due to honey added by the bee to stick her load together (the pollen was taken from homecoming bees at the entrance of the hive).

As examples may be cited (percentages to the nearest unit):

Scotch Fir (*Pinus sylvestris*)—Water, 28 per cent; dry substance, 72 per cent, including fat, 6 per cent; albumen, 8 per cent; cane sugar, 30 per cent; invert sugar, 22 per cent.

Horse Chestnut (*Aesculus hippocastanum*)—Water, 21 per cent; dry substance, 79 per cent, including fat, 11 per cent; albumen, 19 per cent; cane and invert sugars, none.

Grass—Water, 52 per cent; dry substance, 48 per cent, including fat, 3 per cent; albumen, 5 per cent; invert sugar, 39; cane sugar, none.

Dandelion (*Taraxacum officinale*): Water, 22.5 per cent; dry substance, 77.5 per cent, including fat, 13 per cent; albumen, 10.5 per cent; invert sugar, 40 per cent; cane sugar, none.

The much greater value as food for bees (due to their content in fat and albumen) of dandelion and horse chestnut compared with the wind-pollinated fir and grass is obvious.—*Markische Bienen-Zeitung*, September.

Amazonic Queens

By Jay Smith

NOW that the election is over and we have removed Mr. Hoover's picture from our windows, soaked off Governor-elect Leslie's sticker from Lizzie's windshield, hunted up all of our Democratic friends we could find and greeted them with "I told you so," we are back to normalcy and can turn our mind seaward.

I am conscious of the fact that a lot of fellows have been jumping on me lately. First, E. M. Cole, then E. G. Carr, and now comes Allen Latham. Say, if you fellows don't lay off I am going to Chicago and fill my pockets with pineapple bombs and lay for you. And that reminds me that Chicago is making a great name for itself. Even the poet is including Chicago in his sonnets, as the following beautiful lines will attest:

There was an old man from Chicago
Who wanted to see a buzz-saw go,
But he put down his face too close
to the place,
And the doctor said, "Where did
his jaw go?"

Now that is what you fellows will be asking about your jaws if you don't watch out. And what is a bee-keeper without a jaw, I would like to know?

Friend Allen, in the first place I plead guilty to not saying exactly what I meant. When I stated in the American Bee Journal that a queen does not sting anything but another queen, I should have said with very few exceptions. In speaking before various clubs I have said what I really believe in this matter, that a queen never stings anything but another queen **except by accident**. But you say I do not believe a thing because I have never seen it. Some things I do and some I do not. If we believed everything we hear about bees, what a scrambled lot of misinformation we would have! And in writing and speaking, if we stopped to call attention to all of the rare exceptions it would take time and spoil the real beauty of the thought in many cases. For instance, I state that when bees gather pollen they keep to one species for the sake of proper pollination. But some good authorities say there are exceptions to this and that some bees mix pollen from different species. Other good authorities contradict this and say that the pollen is always from species closely allied. Personally, I have never seen any case where different pollens were mixed, as far as I could tell; therefore I state that they do not mix pollen from different species and let it go at that.

You understand I am not doubting

the other fellow's sincerity, but rather his power of observation. I believe it is a good plan in all walks of life to examine both sides of all questions before we can become competent to judge intelligently. If we do, we will be surprised at the "bunk" that we have been taught in all lines. Even some of our school readers pass off for the truth some ridiculous absurdities. For instance, one reader tells how a fly walks on the ceiling. It is supposed to have little cups on its feet, hollowed out so as to produce a vacuum, so that by air pressure the fly walks upside down and does not fall off. (The little cup, **pulvillus**, is a real thing. Cheshire and others show it.—Editor.) If a person had swallowed all this and had done a little thinking, he would have seen that a fly can walk on a soft cotton fabric as well as anything else where it is impossible to produce a vacuum. Therefore, in studying bee behavior, I try to keep an open mind and do not swallow everything just because some one said it was so. Why should I? Mr. Latham, you do not seem to be swallowing everything I say, do you? You say that I "exhibit the weakness common to most of us, namely, to state that a thing is so solely on the argument that he has never seen the thing in question." You are right when you say "weakness common to many of us." So let us turn to page 228, American Bee Journal, May, 1926, and see just what "us" had to say. In reference to queens stinging virgins in cells when openings have been made in the sides of the cells, you state, "At this stage she rarely, if ever, stings the inmate, statements to the contrary notwithstanding." You contradict these statements because you never saw the thing yourself. Now I have a number of times, so that I do not consider them rare. Quite frequently, after the opening is made in the side of the cell, I have seen the virgin alive and active. The virgin inserted the tip of her abdomen into this opening and went through the motion of stinging. The inmate of the cell quivered slightly and was dead.

But let us go back to those unorthodox queens. Have I ever seen queens sting workers? Yes, a number of times. Have I ever been stung by a virgin queen? Yes.

In speaking to clubs I have often told this incident: "A queen never stings anything except a queen or what she thinks is a queen. I have been stung by a queen, but it was a case of mistaken identity, for the queen took me for another queen.

(Laughter.) This accident took place one day when I was requeening some colonies. While thus engaged, like a bolt from the blue came a virgin queen which made a vicious assault upon me, making the attack upon my right leg above the knee. I watched her as she doubled up with wings buzzing in order to help push. After feeling that she had properly stung her rival, she flew away and I could feel a slight burning sensation where the point of her sting had entered my flesh. But how on earth did she come to commit such a social blunder as to mistake me for another queen?" (More laughter.) As above stated, I had been requeening colonies. When removing the old queens, I killed them by pinching them between the finger and thumb. I then unconsciously wiped my finger and thumb on my trouser leg. As this virgin came near she perceived the queen smell on my overalls. She probably said to herself, 'That thing smells like a queen, and while I have never seen one, that must be she, so here goes.'

Years ago, while introducing virgins with nursery cages, I had several experiences similar to Mr. Latham's. Like Mr. Latham, I have long since abolished nursery cages in all bee work. I believe that when a virgin emerges, the bees, as a rule, do not know her from a worker. Likewise when a worker emerges, a virgin does not know her from a virgin. When introducing a virgin I placed her into the nursery cage and placed a number of just emerged workers with her. Sometimes the virgin would sting one of these young workers, and sometimes two or three. She could not tell them from virgins, and as she had been near other cages containing virgins she was suspicious and did not propose to take any chances by waiting to investigate. The case mentioned at Dr. Miller's was similar. Mr. Latham, you mention that after having several virgins in your hand you were stung by a virgin. Your hand had the queen smell and these virgins had been near other virgins. In that case the virgin made a bigger blunder than the one that took me for a laying queen, for she took you for a virgin!

You tell me to put cages containing virgins close together till they get swearing mad and then drop in a worker and watch results. I will do nothing of the kind, for I think it is a mean, dirty trick to frame up a deal like that on an innocent worker.

Anyway, Allen, I stand corrected, for after this, when making my talks, I will say, "A queen never stings anything but another queen except through mistaken identity caused by criminal carelessness."

Bees North of 54

I just recently noticed a short item in the Journal about bees being kept north of 54. I thought you might be interested, and possibly your readers also, in knowing that bees are now being kept at the Alaska Experiment Station, at Fairbanks, Alaska.

One of our former students, Mr. H. W. Alberts, who is now Director of the Alaska Experiment Station, writes me that last year the winter was very severe, and that only one-third of the colonies survived. During the summer they reared brood very fast, and the honeyflow was fairly satisfactory. Next season Mr. Alberts plans to have bees at two of the experiment stations, Fairbanks and Matanuska. He states that during the spring, daylight is more or less continuous and that at times the bees are able to work twenty-four hours a day.

Prof. H. F. Wilson,
Wisconsin.

Honey Ideal for Dipped Walnuts

I recently noted something that may prove of interest to you and your readers in keeping with your articles in the October number of the Journal on new uses of honey. Since walnuts are used extensively at Christmas, and honey seems to "do the trick" in the case in mind, I will pass along the recent findings of Professor Cruess of the Division of Fruit Products in the College of Agriculture, University of California, here.

I will quote Professor Cruess in part, as his remarks refer to a new use of honey. A heavy syrup on walnuts did not work, because it was too sticky, and when walnut meats were covered with a mixture of cane sugar and corn syrup, cooked in water to the cream of fondant stage, the product became hard in a few days.

"As an experiment, a mixture of honey, cane sugar and water was cooked to the fondant stage (soft ball) and stirred until it began to 'grain.' The nuts were added, stirred around a bit, removed and cooled on oiled paper. Some of these have been stored in an open dish for four and one-fourth months (reported in September, 1928,) and the coating is still as tender as when first prepared. The honey did the trick in overcoming hardening of the coating."

Those who prefer the honey flavor to the invert sugars often used by candy manufacturers might like to try this new fondant for sugar-coating walnuts. Recipes for the work, as reported by Professor Cruess, are as follows:

Plain Coating—Three cups walnut kernels, one cup of sugar, one-eighth cup of honey, one-fourth cup of water. Boil water, sugar and honey to 240 degrees F., if a candy thermometer is used, or to a good soft ball. Add a little vanilla and a tea-spoonful of butter at the time of removing from the fire, if this flavor is desired.

Brown Coating—In the above recipe simply add slightly more than one-eighth cup of sweet powdered chocolate. Stir until the coating has creamed and hardened on the nuts, then separate the nuts and cool on oiled paper or a plate.

H. M. Butterfield,
College of Agriculture,
California.

Last Call for these Bee Bulletins

The Government printing office has announced that it has on hand a number of copies of the following named bulletins pertaining to bee-keeping:

Department Circular 218-C, "The Occurrence of Diseases of Adult Bees."

Department Circular 222-C, "The Insulating Value of Commercial Double-walled Beehives."

Department Circular 284-C, "The Sterilization of American Foulbrood Combs."

Department Circular 287-C, "The Occurrence of Diseases of Adult Bees," Part II.

Beekeepers and others interested in beekeeping literature should request copies of the above named bulletins if they have not already done so. These bulletins will not be reprinted and further copies will not be available when the present supply is exhausted. The request should be sent to the Office of Information, U. S. Department of Agriculture, Washington, D. C.

Dr. Oertel to Southern Station

Dr. Everett Oertel has been appointed as assistant apiculturist to fill a vacancy in the Southern States Bee Culture Field Laboratory, recently established at Baton Rouge, Louisiana. He will devote his time largely to the study of floral sources of nectar, manipulation of bees, and other factors closely related to the production of honey.

A Good Crop from Package Bees

On May 1, 1927, I received a two-pound package of bees from the South. They stored 284 pounds of comb honey in the super.

James Kelly, Arcola, Ill.

Proceedings of Permanent Commission of the International Congress of Apiculture

In agreement with the decisions passed at the Turin International Congress of Beekeepers, the following decisions are taken:

1. The ninth International Congress of Beekeeping will meet in Paris in 1932, with Mr. George F. Jaubert as Secretary-General.

2. The three presidents of the International Commission are given full authority to establish regulations for International Congresses, based upon the suggestions of Mr. Vaillancourt.

3. The three presidents of the International Commission are instructed to correspond with the organizers of the International Entomological Congress and with the Apis Club of London.

The commission met at Paris October 18, 1928, at the headquarters of the Canadian Legation, 1 bis, Rue Francois Premier. At this meeting Mr. Morgan, president of the Apis Club of London, was present, after corresponding with Mr. Karl Jordan, Secretary-General of the International Congresses of Entomology.

After a prolonged exchange of views, the following decisions were voted unanimously:

A. The projected statutes for an Association of International Congresses of Apiculture, prepared by Messrs. Vaillancourt and Jaubert, are adopted. These statutes, approved by the commission, will remain in full force until a definite ratification by the next competent Congress.

B. In the meantime the temporary Council of Administration is organized as follows: Presidents, C. P. Dadant, C. Vaillancourt, A. Mayor; Secretary-General, Dr. Zappi-Reordati; Treasurer, George F. Jaubert.

C. The next International Congress of Beekeeping, which will meet in Paris in 1932, will be composed of:
1. The ninth International Congress of Beekeeping. 2. The annual meeting of the Apis Club. 3. The aparian section of the fifth International Congress of Entomology.

D. A local committee of organization of the Paris Congress will be composed of Messrs. Mathieu, Baudu, Mamelle and Jaubert.

Paris, October 18, 1928.
The Presidents of the Permanent

International Commission,
C. Vaillancourt,
A. Mayor,
C. P. Dadant.

The Treasurer, George F. Jaubert.
The President of the Apis Club,
J. Morgan.

About Extracting, Also Favorite Company Dinner

By Betty Bee



BETTY BEE

MY grandmother used to say the greatest gifts a fairy godmother could bequeath a child were a sense of humor and the ability to get the other fellow's viewpoint. The older I grow the more decidedly do I find this true, especially as relative to beekeepers' wives. To illustrate, last September, after the kiddies were all back in school, the family canning and house cleaning completed and our fall extracting done, I decided to run over to my sister Mabel's for a few days.

This is always a treat, so I cheerfully departed with the customary farewell admonitions as to clean ears and collars, proper ventilation and suitable grocery supplies, leaving a house as spotless as a woman with a husband and a lively group of growing youngsters can reasonably expect. I had a glorious visit as always, but, as usual, before my week was out I began to get homesick and came home quite unexpectedly.

Of course I was welcomed with open arms. There was no doubt of my welcome! Really there is nothing like a joyful homecoming, the reuniting of a family.

I glanced about. The living and dining rooms were in splendid shape. The bedrooms were extremely satisfactory. To all appearances everything was lovely—too lovely, perhaps; but nevertheless I began to feel a sort of hilarious happiness, a girlish freedom, that all my years of painstaking training were proving worth while. Indeed my family were developing into excellent housekeepers. As supper time approached, however, we found ourselves wandering kitchenward, and a sort of subconscious suggestion began to haunt me. What was it? Things there looked a bit different, and I began to note certain customary apparatus were conspicuous by their absence.

While continuing my listening to the family history, solo and ensemble,

of the numerous events of the past week, I mentally began making deductions. My pet alarm clock, my newest aluminum dishpan were gone. So were my two ancient buttermilk jars. Then my subconscious,—a light began to dawn. Ha! I knew—the secret came out, "Eight hundred pounds of the most wonderful honey, that the bees could spare just as well as not, and a ready sale for it, too." Proudly I was escorted to the honey house to see it. Mental deductions became mental calculations. My grandmother's training in putting to use my share of my fairy godmother's gifts, a sense of humor and getting the other fellow's viewpoint, began to be worked overtime. At first, I must admit, it took a tremendous stretch of will power.

Considering the large number of ex-kitchen utensils I have contributed willingly and unwillingly to the honey house equipment from time to time since our marriage, I had thought it pretty well supplied, and when I helped with the extracting and especially with the cleaning up it seemed so; but this time—. Well, after I had admired the honey and "how nicely we cleaned everything up," and my two gifts finally got in working order, I realized as never before what they mean to a beekeeper's wife, whose dearest possession may at any time be innocently placed upon the altar of her husband's beekeeping necessities, and I could not help wondering if, unfettered by woman's hands and tongue, just how many utensils it would take to extract a **real crop** of honey, if John's afterthought of eight hundred pounds took what I found in our honey house that evening.

So, for your comfort and peace of mind that you may know your John is no worse than mine, here is a little list of the articles returned in a more or less state of honeyed-stickiness, in the course of the next few days, to their original setting in my

The greatest gift a fairy God-mother can give—humor and the ability to get the other fellow's view point. And how a beekeeper's wife needs them!

kitchen: The aforesaid alarm clock, dishpan and buttermilk jars, the milk strainer, two colanders, four paring knives, my scales, the ladle, both butcher knives, seven silver knives, six table forks, one cold meat fork, seven teaspoons, two dippers, three skillets, three plates, four saucers, a quart cup, two platters, a salad bowl, all the kitchen tea cups, my angel-food pan, the roaster, three glass pitchers, the can opener, and four crocks. After these were once more shining and in place I mildly asked John why they did not take the food chopper and the floor mop; but he looked at me so mildly as if he wondered if it were possible I was poking fun at him, and said, "Well, really you know we did not need them."

And so, my dears, if by chance you still belong to the class of unwedded, and your fairy godmother failed to leave you these two gifts, a sense of humor and the ability to put yourself in the other fellow's place, NEVER marry a beekeeper!

A group of us beekeepers-in-law were discussing this very trait one day not long ago, when our talk came around to honey cooking, and one of them asked me if I had a favorite company dinner—with honey, of course. Every housewife has some certain grouping of food-stuffs which she likes to use on state occasions—a familiar grouping of food of properly balanced elements, to satisfy the men and charm the women and leave them eager for a return invitation—a meal prepared to give the hostess time on the festive day for the last pretty touches, and a meal easily and daintily served.

I have been asked this question several times, and in the hope that it may help you, I gladly pass on my favorite winter company dinner to you. As you will note, the greater part of it may be prepared the day before; it is wholesome and nutritious, very attractive in appearance,

and, best of all, HONEY IS THE ONLY SWEETENING.

Cream of Tomato Soup

A. 1 large can tomatoes
½ onion chopped
½ teaspoon soda
B. 1 quart milk
½ cup flour
4 tablespoons butter
1 tablespoon honey
½ teaspoon salt

(1) Cook together tomato and onion for fifteen minutes; strain, add soda, and set aside until ten minutes before time for serving.

(2) Make cream sauce by melting butter, then adding flour, stirring briskly, adding milk a little at a time. Continue stirring to avoid lumps. Add salt and honey and place in double boiler and cook until raw taste is done. Set aside until ten minutes before time to serve. (Set aside one-half cup of this sauce for celery as given below.) Unite cream sauce with the tomato, bring to boiling point and serve piping hot with a square of toast, a dash of chopped parsley dropped on top as decoration if preferred.

Baked Ham—Select a ten- or twelve-pound ham. Cut off small end and trim off rind and some of the fat. Soak from one to three hours in cold water. Place in roasting pan fat side up and cover completely, tucking in carefully with the following "blanket" of dough: 4½ cups flour, 1 cup honey, 2 tablespoons ground cloves, 2 tablespoons cinnamon, 2 tablespoons mustard, 1 teaspoon black pepper, just enough water to make a very stiff dough. Roll into sheet large enough to cover ham on top, ends and sides. Bake four or five hours in hot oven. When done, remove dough, place ham on large platter and surround with

Virginia Honeyed Sweet Potatoes. Scrape and parboil large, fine sweet potatoes until tender. Drain off liquid, cut in halves, place in large skillet with one-half cup of lard, and let fry until nicely brown, turning carefully to have each side attractively browned. Add one cup honey and one-fourth cup water, set back on stove or in moderate oven and let simmer until honey thickens. Serve as garnishing for ham.

Royal Cabbage—Chop one large head of red cabbage, removing heavy, hard mid-ribs. Place in skillet with one-half cup boiling water, one small onion cut fine, two tablespoons butter, one-half teaspoon salt, one-eighth teaspoon nutmeg and a dash of cayenne. Cover and cook until tender. Then add juice of lemon (strained) and one tablespoon of honey, bring to boil, and serve. White cabbage may also be cooked this way, but is not so delicately delicious or attrac-

tive.

Celery in Turnip Cups—(1) Wash and peel enough medium turnips for individual serving. In stem end, hollow depression about size of walnut, flatten bottom of turnip. Parboil in slightly salted water until done, being careful that each "cup" is unbroken. Set away in cool place until thirty minutes before time to serve.

(2) Separate, wash, scrape and cut into small pieces one large stalk of celery. Cook until tender, adding salt to taste just before celery is done. Drain off all but one cup of the liquid, to which when serving time comes is to be added the one-half cup of cream sauce described above under cream of tomato soup. About thirty minutes before time to serve, mix celery with the liquid and the cream sauce, fill depression in turnip cup, sprinkle generously with grated cheese and heat fifteen or twenty minutes in oven. Serve individually or on large chop plate garnished with a few fresh celery leaves.

Honey-Peach Preserves as described in the August, 1928, issue of the American Bee Journal, page 393, are delicious and add much to the attractive appearance of the table.

Happiness Salad—Dissolve one package of lemon jello or lemon gelatin in one pint of boiling water and let stand until it begins to

thicken. Mix lightly one unpared red apple chopped very fine, two grated carrots, one orange cut in tiny bits, and two sliced bananas. Add part of the thickening jello, stir carefully, drop into individual molds, add balance of jello, and set away to cool and harden until ready to serve. Then turn out carefully on bed of shredded lettuce, garnish with a bit of whipped cream sweetened with honey with a dash of orange juice added, and, if desired, tip with a red cherry or a few nut meats.

Honey Pumpkin Pie—Too often the pumpkin pie season comes when our Biddies are reluctant to give us eggs. Honey pumpkin pie as described here is delicious and economical, and your family will never notice the absence of eggs, I am sure. To one can of pumpkin or one quart of cooked pumpkin add 1½ cup of honey, 2 tablespoons of cornstarch, 2 tablespoons melted butter, ¾ cup sweet milk, 1 teaspoon ground cinnamon, a pinch of salt and ½ teaspoon baking powder. Bring to boil while preparing the pie crust. Pour into crusts, bake in the usual way. Serve warm or cold, with or without whipped cream. If the latter, to sweeten the cream, with a little honey, is most delicious, and served with one's favorite cup of coffee makes an ideal dessert for this company dinner for winter. Try it.

Chilton Gets Blue Ribbon at Tulsa and Muskogee



In competition with about eight exhibits, limited to three hundred pounds of honey each, at both Tulsa and Muskogee fairs, A. C. Chilton carried off the blue ribbons. "They were all so nice it was hard to say which was first." All the more credit to Mr. Chilton because of close competition. The reward is indeed well merited.

Premiums were as follows: White extracted honey, second; beeswax design, first; display, first; wax, second; three-banded bees, first; empty comb, fifth; amber chunk honey, fourth; wild flower honey, second. Total cash awards, \$81.00.

Chilton was a city fireman for twelve years. Bad health led him to bee-keeping and he is just making a good start.

All together, now,—one cheer ahead.

Why Not Master Beekeepers

By Don B. Whelan

SHALL we honor the beekeepers in the many parts of the country who have not only made a success of their profession, but who have also helped to give it a good reputation in their state, county and community? Such a step would give honor where honor is due and would help to focus interest on the industry as a whole. Each year the "dirt farmers" are honored in many of the states by being chosen as "Master Farmers." Last year seventeen states selected master farmers, and the movement has grown so that now it has received national recognition. In these states it is considered as the highest reward that can come to a farmer.

Why not choose some master beekeepers in a similar manner, but have it national in scope instead of confined to the separate states? In order to inaugurate such a procedure we would have to set a standard by which the master beekeepers could be chosen. Perhaps we would not all agree as to just what should constitute this standard of merit. Some might say that a man's success with his bees should be the sole or outstanding criterion for such a choice, while others might contend that it is what a man has done to advance the profession as a whole that should count. Still others might demand that it should be confined to those who make their entire living from the profession of beekeeping.

Since the choosing of master farmers is already an established custom, we might do well to see how they accomplish it and perhaps pattern after them to some extent. With them, the farmer is nominated in the spring, as a candidate for the honor of master farmer, by a friend, neighbor or acquaintance, and the nomination is then sent to the farm paper that is backing the movement in his state. No farmer has a chance of being chosen unless he is first nominated and given a preliminary score on a standard score sheet by the person making the nomination. After the nominations are all in, a questionnaire is sent to the candidates to be filled out and returned. Later a representative of the paper sends someone to visit each candidate and to inquire about his character and fitness to receive the honor; also to learn of his standing in the community. In getting this information he consults the candidate's neighbors, his banker and many others. This often eliminates many who could not come up to standard. Last year in Nebraska there were 115 farmers nominated for the honor, but

only 56 were left after the visit to the farmer's community. From these the final ten were chosen by a competent committee.

In order to have master beekeepers chosen, some plan should be devised so that their selection should be truly national. Perhaps if a few beekeepers were to be nominated from each section of the country it would help to keep it national in character. It might not be fair for a beekeeper in one part of the country to compete with an outstanding honey producer living in a more favorable region. To prevent this, the country could be divided up into five districts and then each year two master beekeepers could be selected from each district. Or, if preferable, we could use the ten districts as recognized by the American Honey Producers' League and elect one person from each district and say five at large. Some might prefer to select two from each of the ten districts.

If such an idea were adopted, a workable plan should be developed. To present a plan and place it before the beekeeping public, I will suggest that this movement be inaugurated and held under the auspices of the American Honey Producers' League or else be sponsored by one of the leading bee journals.

In the spring or early summer anyone wishing to nominate a honey producer for the honor of master beekeeper can send to the League's secretary, the election commissioner, or some other designated official, or bee journal, for a nomination blank

and score sheet. These, when properly filled out, shall be returned and then a direct questionnaire will be sent to the beekeeper who is nominated. With the return of this questionnaire he will be required to submit the names of his local banker and one or two others who can be used for references. To each of these references the official will then send a blank to be filled out. This will deal with the candidate's standing in the community, also with his activities in regard to his neighbors, his business and his home. When these are all in his hands the official in charge will then turn all of the evidence collected over to an impartial committee, of which he is a member, to select the winners. If this plan were fostered by the League, the committee could well be the Board of Directors.

To be a success, all of the nominations should be sent in by the first of July of each year. This would give the committee until fall to complete the correspondence and get all of the information possible from and about the candidate. Then they would have the late fall to make their selection and the remainder of the time before the winter meeting of the League to get their reports ready and prepare suitable rewards.

I am sure that some will applaud the above suggestions while others will ridicule and laugh at them, but I feel sure that this plan has much merit to commend it. It will give the right kind of publicity to our profession and honor to those leaders who are doing so much in their often silent way to advance it in the eyes of their community. Today honors are being bestowed upon the regular farmers,

Score Card for Choosing Master Beekeepers

	Full Score	Score
I. Operation and Organization of Apiary	300	
1. Apiary methods	40	
2. Efficiency in use of help and machinery	50	
3. Colony yields	50	
4. Quality of honey	40	
5. Adequate equipment, its care when not in use	40	
6. Efficiency and management of outyard	40	
7. Efficiency and management of home apiary	40	
II. Business Methods and Ability	160	
1. Relation of income to expenses	50	
2. Financial progress since beginning	50	
3. Accounting methods	20	
4. Business reputation	40	
III. General Apiary Appearance and Upkeep	90	
1. Repair and upkeep of buildings	45	
2. Repair and upkeep of equipment and supplies	45	
IV. Home Life	300	
1. Convenient home (modern)	50	
2. Labor-saving equipment in home	75	
3. Character as husband and beekeeper	100	
4. Education and training of children	75	
V. Citizenship	150	
1. Neighborliness	50	
2. Interest in schools	20	
3. Interest in church	20	
4. Interest in other community enterprises	30	
5. Interest in local, state and national government	30	
	1000	

the fruit growers and the stock men, while the statesmen are publicly acclaimed, but the beekeeper is just a beekeeper, little heard of outside of the territory in which his honey is sold. Let us give credit where it is justly deserved and a reward in recognition of merited service.

Sweet Clover to the Front

M. G. Dadant

We have before us the annual report of H. W. Mumford, Dean and Director of the Agricultural Experiment Station, University of Illinois. It is entitled "A Year's Progress in Solving Farm Problems of Illinois," a 320-page book. Mr. Mumford goes into detail description of the various problems undertaken by that agricultural station in different farming lines. Unfortunately there is no mention of bees nor beekeeping, perhaps from the fact that the Department of Beekeeping in Illinois is located in the Entomological Department rather than in the Agricultural.

There is, however, substance for considerable thought in the different reports on sweet clover and its progress in Illinois.

For instance, experiments have been conducted on the effect of sweet clover on bloating of cattle, which has many times been reported. The results are that there have been no bloating effects found from good dry, sweet clover, properly harvested. Moldy hay is the cause of bloating. Moldy hay alone should not be fed to cattle, and even moldy hay combined with good, clean hay is to be avoided.

Experiments were conducted to determine whether plowing of sweet clover early in the spring was as valuable for soil building as to plow the clover later when it had reached a good growth, but still in time for corn planting. Results indicate that early plowing is as desirable as late plowing, there being very little difference noted in the yield on the two plots.

Another experiment conducted has been in determining just exactly what the effect is of residues returned to the soil in the case of sweet clover and red clover. In other words, in one instance sweet clover and wheat stubble were turned under and in the other instance the wheat stubble and red clover.

It was found that the plot where sweet clover and wheat stubble were turned under made an increased yield per acre of \$4.97 per year, whereas the turning under of red clover and the same stubble made an increased yield of only \$2.61 per year per acre.

This shows a result highly in favor of sweet clover.

The remarkable experiment, however, in our opinion, showing just how far sweet clover is going to go in the future, is the experiment conducted by first liming soils and then planting sweet clover and turning same under. Where limestone and sweet clover were used on the dark soils there was an added increase per acre per year of \$6.12.

As remarkable as this appears, the same experiment with limestone and sweet clover on the light soils of southern Illinois showed an average return per acre per year of \$10.05. Pretty good interest on the investment besides paying for all liming and the sweet clover seed.

The writer was amazed to see the progress of sweet clover in south central Illinois when on a field trip this year. Undoubtedly with such returns by the Department of Illinois Agriculture this progress is going to continue, not only in Illinois, but in all other states, and we may in time to come find that the present heavy producing sweet clover honey sections of the North are going to meet keener competition from their sisters farther south, who are interested primarily in soil building, but may be able to harvest moderate honey crops as well.

County agents everywhere are recommending the limestone and sweet clover procedure, and undoubtedly better times with the farmers are going to mean increased activity in this project work.

The Passing of a Bee Master

By George H. Rea

It is always with a feeling of sadness and regret that we note the passing of one of the bee masters of the old school. Such a bee master was Alonzo Sides, of Pine Flats, Indiana county, Pennsylvania. Mr. Sides passed quietly into the beyond, in the early morning of November 3, at the age of 77 years.

His entire life was spent among his bees. His father was a beekeeper, as was the father of Mrs. Sides. The latter is now left alone on the old homestead. During his last illness Mr. Sides thought of his bees and worried because he had been unable to prepare them for winter. Since his death Mrs. Sides has sold the bees, and thus ends the beekeeping as well as the career of a noble man. Mr. Sides will be greatly missed by those who knew him best, and especially by those younger beekeepers of his locality, who always found him a sympathetic listener and wise adviser in all of their problems.

Importation of Beeswax and Foundation Comb Into South Africa

"The Department of Agriculture hereby gives notice that from this date any permit for the introduction of foundation comb into the Union will be made conditional in respect of each consignment on the surrender of a sworn statement from the supplier declaring that the wax from which the said foundation comb was prepared was heated to a temperature of 212° F. for half an hour. Any permit for the introduction of beeswax other than white wax will be made conditional on the surrender of a similar sworn statement in respect of each consignment, or, failing such declaration, on the heating of the article on its arrival for half an hour at the temperature specified, unless arrangements have been made with the Department for the keeping and manufacture of the article in such manner as is deemed by the Department to render the special heating unnecessary. Wax accepted by the inspecting officer as pure white beeswax will continue to be admitted under special permit without any declaration and without being subjected to heating.

"Applications for permits should be addressed to Chief, Division of Entomology, P. O. Box 513, Pretoria.

"Government notice No. 795 of 8th June, 1912, is hereby cancelled."

F. B. Smith,
Secretary for Agriculture,
Pretoria.

Honey in the Baking Trade

The increased use of honey in the baking trade indicates that in future this means of outlet may become very important to the beekeeper. A recent issue of the American Independent Baker copied the market page from the American Bee Journal in full. A trade publication of this kind would hardly devote so much space to honey markets unless a considerable portion of its readers were interested in the subject.

Poor Crop in Germany

A recent report is to the effect that the honey crop in northern Germany is the poorest in many years. Cold and rainy weather is given as the cause of the poor season. It is said that the number of colonies in this section has greatly decreased and that those that remain are in many cases queenless or short of stores.

In the southern and eastern sections of Germany, on the other hand, the crop is reported as about average.



Eight fruit spurs that blossomed on this Northern Spy branch produced sixteen apples. Thirteen apples are touching. Note the bee yard fence in the background.

Busy Bees Bring Bending Branches

By H. D. Hootman

MOST fruit growers think of the word "stung" when bees are mentioned. However, to be "stung" with a light fruit crop is often more serious than the insects' wounds. Observations in several Michigan orchards in recent years have indicated that lack of bees in the orchards at blossom time has been partly responsible for the light crops produced. Some orchardists are already obtaining as heavy a "set" as is desirable for a satisfactory crop. To increase it further would complicate the management problem and incur thinning. Honeybees have played an important part in many orchards this year. Their use adds a new interest to orcharding and measurably increases yields. Where bees were used this year for the first time the fruit grower invariably underestimated the size of his crop.

Ill-Feeling Between Neighbors

A year ago the writer was asked to visit a Northern Spy orchard in central Michigan where it was suspected that a pollination problem existed. In driving by the orchard it appeared as if a good crop was on the trees. Closer examination revealed that only the trees in the outside row around the orchard and for several rows on the north side where Jonathans and Baldwins joined them were bearing satisfactorily. It was apparently a pollination problem, for the whole orchard had bloomed profusely. The crop on the outside row of trees was probably pollinated by bees or wild insects carrying pollen

to the orchard from home orchards in the vicinity.

I recalled that while visiting a beekeeper's yard in this same neighborhood several months earlier I had



The extremely heavy set of Montmorency cherries on the limb above is the result of having colonies of bees distributed in the orchard at blossom time. Sour cherries are considered self-sterile, or capable of setting fruit when pollinated with the pollen of their own blossoms. It has been demonstrated that cherry yields in Michigan can be measurably increased by providing for plenty of insect activity in the orchard at blossom time, as little or no pollen is carried by the wind.

heard this particular fruit grower's pedigree read in no uncertain terms for spraying when the trees were in bloom. In truth the fruit grower was quoted as not giving a d—if there wasn't a bee within twenty miles of him. Here were two neighbors, a beekeeper and a fruit grower, at swords points with each other, instead of working harmoniously together.

A change has taken place in the attitude of these two men because of a better understanding of each other's problems. This year at blossom time, spraying operations ceased and for a cash consideration the beekeeper distributed a truckload of his bees in the fruit grower's orchard. Tubs of water were placed in front of the colonies and kept filled with fresh bouquets of apple varieties that are known to effectively pollinate the Northern Spy. All this effort was not in vain, for the crop this year of 7,000 bushels was the largest in fifteen years. A good crop of apples was produced on all trees that blossomed in the orchard, instead of as formerly—on the outside row and on trees located near the Jonathans and Baldwins.

County Survey Made

During the fall of 1927 a survey of the orchards in Oceana county was made in cooperation with the county agricultural agent to determine the probable bee requirements of the county and to aid the owners of orchards where pollination problems existed. Few beekeepers were



These four pounds of cherries were picked from a tree "caged" during the blossoming season to exclude insects.

found located in the fruit districts of this county, as the sandy type of soil that abounds there does not lend itself particularly well to the production of clovers. Most seasons there are few honey plants for the bees to work on after the fruit bloom is gone.

In the W. R. Roach Company orchards located north of Hart a 20-acre solid block of McIntosh was located that had been consistently producing unusually light crops for an orchard 22 years of age that was so well cared for. The crop that year was only 700 bushels (an average of a trifle more than a bushel per tree), but crops in previous years

had been as high as 1600 bushels. It seemed that the orchard should produce considerably more if its blossoms were properly pollinated.

Arrangements were made with C. J. Freeman, a beekeeper eighty miles away, to furnish 200 colonies of bees to be distributed in the Roach orchards for the blossoming period. On the morning of May 18th the four truckloads of bees were distributed in 150 acres of apples and cherries to utilize for pollination purposes any flights that were made. Conditions for handling and moving the bees must have been ideal, for this operation was completed without a single man getting stung. The colonies were left in the orchards eleven days, during which time the bees gathered three tons of honey.



Forty-four pounds of cherries from a tree the same age as the one at the left and close by it. This tree was not caged.

A 265-Ton Cherry Crop

The owners of the orchard screened, to exclude all insects, a single Montmorency cherry tree and a single McIntosh, to determine what was being accomplished by the bees. The caged cherry tree picked just four pounds of cherries, while another tree of the same size nearby, to which the bees had had access, picked forty-four pounds. Cherry harvest in this orchard was a long drawn out affair. It seemed that there would be no end to it. Finally the last load was weighed, at the factory, and a 265-ton crop reported.

Blasted Hopes Bright Again

At the close of the apple blossom season it appeared that the attempt



A branch from a J. H. Hale peach tree bearing one peach and two "buttons." The "buttons" would have been large peaches had cross-pollination taken place.



These 200 colonies of bees gathered three tons of honey in eleven days while distributed in the cherry and apple orchards of the W. R. Roach Company, near Hart, Michigan. The cherry crop for this orchard in 1928 was 265 tons.



The writer inspecting a crop of Bartlett pears that was set at the Graham Horticultural Experiment Station by the use of "bees and bouquets"

to set a crop in the McIntosh block had been a failure. It was impossible to secure sufficient bouquet material to keep the buckets located in front of the colonies supplied with fresh branches. The bees had shown a marked preference for the cherry blossoms and worked them to the exclusion of the apples as long as cherry bloom was available.

The screened McIntosh tree "set" twenty-five apples, while its nearest neighbor, 40 feet away, where provision with bouquets was made for cross-pollination to take place, set over 1200. At the time of the visits of the Wisconsin and Michigan State Horticultural Societies to the orchard on June 29, 1928, it was estimated that the crop would compare favorably with the largest formerly produced of 1600 bushels. As the season advanced, red apples seemed to appear well distributed through many trees where they had been unnoticed earlier. It was apparent that previous estimates had been too low. Some individual trees picked over twenty bushels, and a total of 4,000 bushels were harvested.

Bartlett and Seckel Inter-Sterile

In 1920 I planted a small orchard of 100 Bartlett and 20 Seckel pear trees at the Graham Horticultural Experiment Station, near Grand Rapids, Michigan. Some six years later it was learned, as a result of pear pollination experiments, that these two varieties that have been so generally planted together are **inter-stereile**, or unable to effectively pollinate each other. The following year the twenty Seckel trees were

grafted to either Bosc or Conference—two varieties that have proved to be good pollenizers for the Bartlett.

It should be remembered that while this orchard is still young most of the Bartlett trees have blossomed regularly since 1924. However, few blossoms "set" and developed into pears. As the trees increased in size there was a slight increase in the number of pears gathered; the

largest crop of seven bushels being produced in 1927. This year it was decided to see what could be accomplished by locating several colonies of bees in the orchard and using bouquets of Howell and Keiffer blossoms to supply pollen for cross pollination, as the Bosc and Conference grafts had not reached the blossoming stage. We were rewarded with a nice crop of 150 bushels of choice Bartlett pears from this young orchard for our trouble. After another year, bouquets will not be required to "set" a crop in this orchard, as enough grafts of Bosc and Conference will probably be blossoming to supply the pollen necessary for a satisfactory crop.

"Buttons" or Peaches

Several years ago H. M. Peck, of Grand Rapids, planted 400 J. H. Hale peach trees in a solid block. This was previous to 1922, when it was first learned that the Hale was self-sterile and should be inter-planted with other varieties so that cross-pollination can readily take place if the production of "buttons" is to be avoided. This Hale orchard had been particularly regular in producing a crop of "buttons," and an attempt



H. M. Peck, of Grand Rapids, Michigan, in his J. H. Hale peach orchard at harvest time. Four hundred Hale trees had been planted without provision for cross pollination. Colonies of bees distributed through the orchard and bouquets of Banner blossoms produced the extremely heavy set pictured above. One thousand bushels were picked from this block this year.

was made to correct the condition last spring.

The bees were moved from the yard by the house and placed near South Haven and Banner peach trees at the edge of the Hale block. It was observed that the bees would neglect a number of our more commonly grown peach varieties in preference to the Banner blossoms. Possibly it was because they secreted more nectar. Because of this apparent preference, branches of this variety were used in all bouquets in the orchard. How well the attempt succeeded is attested by the picture accompanying this article. Diligent search had to be made to find a single "button," and over 1000 bushels of Hales were gathered from the block.

Bees Increase Cherry Yield \$7,000

Some of the readers of the American Bee Journal may recall, in the February issue, 1928, the incident related of the satisfactory experience of Friday Brothers in obtaining their first J. H. Hale peach crop after distributing bees through the orchard. Encouraged by that experience, they distributed colonies of bees through all their orchards this year, with striking results. For instance, their cherry orchards which are of mature age had produced as much as 120 tons. This year's crop was 188 tons. In commenting upon the increased yield Mr. Friday stated that, while a part of the increased tonnage was probably due to the increased size of the trees, he credited fifty of the additional tons to the bees.

The Wills Bee Feeder

Let me say at the very start that I am not in the least interested in disposing of merchandise for anyone. I get no commissions and am offering this to American Bee Journal without the knowledge of the manufacturer. I am speaking entirely for the "good of the order."

There is a feeder invented and manufactured by Mr. J. E. Wills, of Independence, Missouri, that every beekeeper who has to feed should know about. Its main features are these: It sits on the hive just like the inner cover and in place of it. The bees reach the syrup without seeing daylight, without knowing when the syrup is poured in, and without the least disturbance whatever. In fact there is no more disturbance than there would be when simply lifting the top cover and replacing it without touching the inner cover. The feeder is really an inner cover built to contain from one gallon to six quarts of syrup without leaking. One can go to the hive after dark, lift the top cover, pour in all the syrup it will hold and go

The Correctness of Parthenogenesis

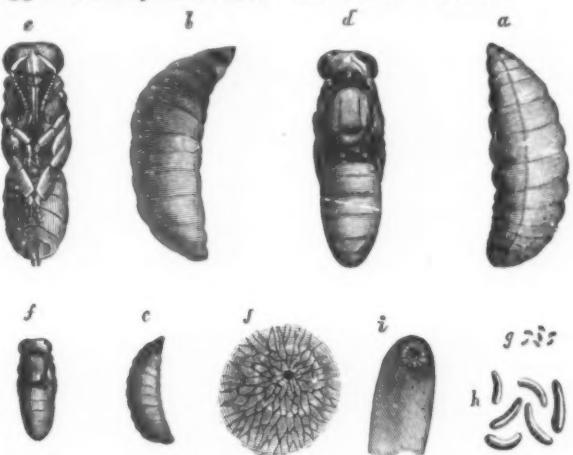
"I thank you very sincerely for your reply to my question as to spermatozooids in female eggs, but I am not quite convinced that the point I have raised has been fully cleared up. I have your book on the honey-bee, with a good deal of other literature, and rate yours as the best I have met with, and I hold a degree in physiology. Somewhere I have seen it stated that the worker bees follow the queen around and look into a cell as soon as the egg is laid. There must be a certain lapse of time in which the spermatozoid is entering the myrcopyle, while to the bee the spermatozoid is probably of appreciable size. Could you tell me whether the eggs laid by the queen in drone cells have been examined immediately for spermatozooids before any worker could have access to them? The difficulty for accounting for a spermatozoid practically never reaching a drone egg and always a worker

egg makes me, I fear, a little obstinate on the subject." Tasmania.

The only way for you to convince yourself of the correctness of the statements of the scientists on parthenogenesis would be to put a small cluster of bees with one comb and a queen in what is called an "observing hive." See paragraphs 375-377 of our book, "The Hive and Honey-bee." You will see that it is not by any means a regular happening for the worker bees to put their head into the cell as soon as the queen has laid.

The egg is fertilized, as it passes near the spermatheca, by an infinitesimally small amount of sperm, containing spermatozoa, entering its shell through a small opening at the large end of the egg called the "myrcopyle" (Par. 139 of our book).

These matters have been so thoroughly tested that there is no room for doubt.—Editor.



Stages in the life history of the honeybee. H, a group of eggs; I, a single egg enlarged, showing micropyle at top; J, a still greater enlargement of micropyle end, showing small opening into the egg.

away again without a bee knowing anything has happened. They will take that syrup in less than twenty-four hours and be ready for another gallon the next night.

Also, feed as late as you want to in the fall. After the last feed is done and taken up, fill the feeder with chaff, put your top cover back, dust off your hands and then straighten your shoulders, draw a long breath and say, "There, that's done." The feeder is really a step onward, to my mind, and for the sake of the fraternity I could wish Mr. Wills was a better advertiser.

Edwin A. Lewis, Missouri.

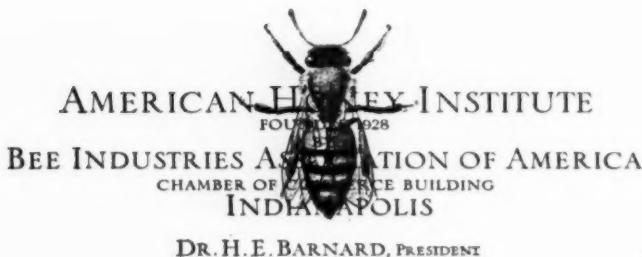
Asparagus for Early Pollen

By Victor V. Vinson

Under questions and answers, in your Journal, I notice where "Wisconsin" tells of his troubles about late pollen. I had the same trouble and early increase was not to be

thought of here. I did not find out by figuring or reading, but entirely by accident, that asparagus will turn the trick. I did not know it would, but I wanted some and bought and planted 800 roots, and I cut it for eating and then let the tops grow, and I have found out that the tops or ferns do not only furnish an abundance of pollen but that the bees work it for honey. Since I have discovered this by accident, I notice that Frank Pellett tells of it in his wonderful work entitled "American Honey Plants." From this same patch of asparagus I sell enough of this early vegetable to make fine returns for the use of the land. Your answer to "Wisconsin" is that corn answers in your section. It did not do so in this section of Kentucky, but, as I stated above, asparagus relieved the situation to my entire satisfaction.

(We will be glad of other suggestions on this subject.—Editor.)



Commander Byrd Carries Honey to the Antarctic

Some months ago Natt N. Dodge suggested to American Honey Institute that when Commander Richard E. Byrd of Arctic fame started with his expedition to the South Pole he should depend on honey as the sweetening agent with which to maintain the strength and energy of his men. When the suggestion was made, Commander Byrd had already left New York, but by using the cables Dr. Barnard reached A. H. Davies, President of the New Zealand Beekeepers' Association, with a suggestion that adequate stores of honey should be added to the food stores of Commander Byrd.

The story of this cooperative effort on the part of American and New Zealand beekeepers to furnish this, the greatest of all Polar expedition parties, with a food which would not only furnish energy, but happiness, during the long, cold days was widespread by the press service. One of the stories ran:

"When Byrd and his men dip their spoons into the honey pot for sweetening their coffee, or spread it on their griddle cakes and waffles, the very flavor of the combination will recall the fragrance of the flowers in the fields and orchards which supplied the nectar."

The final chapter in this effort to find a use for honey never before available came with the receipt of a cablegram from Shirley, New Zealand, signed by James Ecroyd, Secretary of the National Beekeepers' Association, extending the Institute thanks for its suggestion and advising us that a quarter of a ton of honey has been supplied the Byrd expedition.

American beekeepers and their friends in New Zealand may well be happy over the successful conclusion of Natt N. Dodge's suggestion that honey was entitled to a prominent place in the food supply of a Polar expedition.

The Institute Attends Conventions

The American Honey Institute was represented at the forty-ninth annual convention of the Ontario Beekeepers' Association, which met the last

of November at Toronto. Dr. Barnard made two addresses in which he discussed the aims of the American Honey Institute and developed some of the ideas by which the Institute is working to improve the honey market. While at Toronto he visited the Ontario Honey Producers' Cooperative, through which much of the honey crop of Canada is marketed. This cooperative appreciates the value of advertising, and some of its slogans and copy is so creditable that it might well be used by every beekeeper and dealer in honey.

Among a series of very attractive street car display cards was one which read, "My son, eat thou honey because it is good. Sweet to the soul and health to the bones."

Another enlists the support of the baking industry with its suggestion to "Spread it on thick. Honey doubles the food value of bread."

A counter display card pictures an appetizing plate of hot biscuits reinforced by a jar of honey, thus capitalizing the appetizing combination of honey and hot biscuits.

On December 6 Dr. Barnard attended the annual convention of the Illinois State Beekeepers' Association at Springfield, where he discussed "The American Honey Institute: Its Aims and Purposes."

On the nineteenth of December he will carry the same story to the beekeepers of Michigan, who are meeting at Battle Creek. While there he will carry to Mary I. Barber, director of the Home Economics Department of the Kellogg Company, the grateful thanks of beekeepers everywhere for the honey recipes and formulas which this great breakfast food company has broadcast to millions, and for the suggestion made in all of its nation-wide advertising that honey poured over Kellogg corn-flakes is the ideal sweetening agent.

Telling It to Bakers

For five years the Fleischmann Yeast Company has maintained a traveling school through which it teaches the baker how to make better products. During the past five years this school has conducted sessions in all the principal cities of the country and has graduated many

thousand bakers. The school is now giving a two weeks' course in Boston, during which for five days in the week the students are taught modern production methods and furnished with quality formulas for use in making better products. William Broeg, the director of the school, is rendering a valuable service to all honey producers, for he uses honey whenever he can in his cake formulas, whole wheat breads and sweet dough products. No small part of the awakened interest bakers have in honey as the most desirable sweetening and flavoring agent is due to the formulas Mr. Broeg gives the students of the Fleischmann traveling school.

Honey Makes the Comic Strip

Sometimes it is the headlines that catch the reader's attention occasionally editorials are thoughtfully read, but when the comic strip, which tells its story pictorially, refers to food or fashions it is the most successful form of publicity.

"Little Orphan Annie" has been in and out of trouble for years and numbers her friends by the millions. At present she is home again with the Silos, and a recent strip showed her helping with the chores, and after the chores were done and she came back hungry from the barn, her natural inquiry was, "What are we going to have for supper?" and Mrs. Silo said, "Well, we have corn bread for one thing, and there's all the comb honey you can eat." And so, with generous helpings of comb honey, little Orphan Annie came to the end of a busy day.

Robbers Easily Enter Hive Where Bees Are "Exercising"

We never stop learning with bees. So a writer in *Uns' Innen* (Germany, October) reminds us, relating his experience with robbers. At 6 in the evening he put on feeders. One colony which had bees exercising in front was obviously being plagued by robbers. As soon as the "exercising" ceased, the colony began to defend itself and drive off the robbers. Then another colony began exercising; and at once the robbers were there. A stock that is exercising appears not to defend itself; the writer suspects that the robbers sneak in unperceived along with the exercising bees.

(An alternative suggestion would be that, according to the work of Rosch, the exercising bees are precisely those which are at the guard-bee stage. They being thus occupied, robbers can sneak in unchallenged, perhaps.) A. D. B.

Recollections of an Old-Timer in the Northland

By Fred Underwood

STATISTICS show that North Dakota is now seventh among the states in annual production of honey; that the industry is progressing by leaps and bounds that give promise soon to make the state a contender among the foremost; that the industry is just getting well under way, which bids fair to make honey production of prime importance among our products.

To us oldsters, who have made the prairies our homes for nearly a half century, such a situation is amazing. To us, how can such things be? As old age arm-chair comfort lures, we think of the days of yore, when, on the wide rolling prairies of the northland, reaching from the wheat lands of the Red River westward through the range country, the country of the buffalo, and on to the blue of the western mountains, perhaps not one colony of bees existed, we sit and think, and ponder.

And memory lures us back through the pioneer days of the West; to the days of childhood, a boy on a small farm in the big timber district of one of the older states; a country where timber was so plentiful that it was destroyed as rapidly as possible. Today it would be worth a vast fortune. Huge black walnut trees four to six feet through at the butt, the stumps of which exist to this day, were felled and split into fence rails merely to rid the farms of them, and for the more selfish reason that walnut timber split into rails much easier than some of the heavier timbers, making rails that lasted for many years. It was father's boast that his farm had over four miles of black walnut rail fences. What a fortune wasted in a bit of false economy!

During those earlier days I resided upon a farm in extreme southern Michigan. There father, or rather my stepfather, kept a small apiary in connection with his farming operations, and at times during the season of swarming and in the rush of the honey gathering season it became necessary for me to lend a helping hand in caring for the bees and honey. And when it came time to retrieve a swarm of bees that may have settled some fifty or sixty feet up in the top of some tall forest tree, regardless of the pounding of tin cans, ringing of the farm bell or the flashing of lights among the bees from a mirror, it then resolved itself into a case of "let Fred do it."

Father was a skilled mechanic and was proud of it, and I always thought that the reason why he made most

of his hives, crates, sections, etc., was that it gave him opportunity to display this skill. But in any event he had a saw-table mounted with a circular saw. This was driven by a down-power which was motorized by an old blind mare, with an accelerator comprising myself and a lick-stick. Thus we fashioned many of the hives and other equipment used by ourselves and many of the neighbors.

We must not forget the so-called wild bees, for they did their part in the domestic economy of the settlers among the trees. Spoils of the bee tree provided honey for pancakes on cold winter mornings; honey for the bread and butter of kiddies; honey for dad's cold mid-day lunch to be eaten in the forest while hovering over a small brushwood fire; honey for bait for more hunting for bee trees next summer; honey for all of the housewife's domestic cooking from early frost of fall till the coming of the maple sugar of the following spring; honey, without which there would be scant sweets in many a log cabin for months at a time.

Just how many of the present generation have any idea of the modus operandi of the bee hunters?

I suspect away up in the attic of that old house which I once called home, in company with the old muzzle-loading shotgun and mother's flax hetchel and old spinning-wheel, will be found a bee hunter's box. This was merely a shallow wooden box about four inches square, with a glass cover to slide into position through grooves in the side pieces, and with a handle for convenience. With a bit of honey and a hatchet, this was the sole equipment needed, unless one should be so fortunate as to have a field glass of quality. The latter were too expensive for the average hunter, so they were largely dispensed with.

On a hot day in June, uncle suggested to his wife that, as it was too hot to work in the slashing, it might be a good time to look up a bee tree for fall plundering, so they might have honey for winter. The wife fell for the platitude, so uncle called to a boy and together they disappeared into the cool and inviting shades of the woods. Proceeding at leisure and reading signs as they went, they penetrated deep into the forest. Coming to a somewhat open place among the trees, on the borders of which was a profusion of nectar-producing bloom, uncle looked about to locate bees that might be gather-

ing sweets, and the while placing a bit of honey inside the bee box.

Finding a bee at work, he skilfully seduced it to the box by the attractions of the honey it held. Quickly closing the glass top, he proceeded to a nearby stump well in the open, placed the box on top of the stump, watched the bee till he was satisfied that it was hastily taking on a load of the honey, then quietly slipped off the glass cover, stepped back so not to disturb the bee—and the trap was set.

Right here developed the full psychology of uncle's willing offer to devote his day to the hunting of a bee tree for next fall's reference, rather than to devote himself to the useful labor of swinging an axe under the broiling sun of a mid-June day. Remember Riley's "Knee Deep in June?" Well, here was the day, and uncle not only "knee deep," but wholly immersed in it, as he lighted his pipe, sought a shady place and threw himself at full length in the grass. With arm for pillow came peace and content—no accounting for time or effort until the sun goes down; the old world wags on. What does he care?

The honeybee is a confirmed thief, and uncle knew it when the trap was set. He merely bided his time until the bee should betray his tree. Although a thief, it is a companionate chap in its thievery. He wants all of the colony to know where the loot lies; to join with it in robbery, especially since it will increase the store of honey for the home colony.

The bee in the trap was diligent, took on its load of honey, rose on the wing, circled about a couple of times, higher and higher, and, getting the bearings, was off like a shot for home. After a time another bee, doubtless the same one, appeared at the trap seeking for more honey; another quickly joined it; then another, and another. Soon the trap was the center of attraction in a grand rally of bees, all after the honey. In a short time there was almost a continuous stream of bees passing to and fro between the trap and the bee tree.

Uncle roused himself, observed their activities, keenly watching the flight for a moment, and then had only to walk to the homing tree.

Uncle affixed his private mark on the tree near the bulging roots with his hatchet, much like branding cattle on the ranges, and the tree was his. Trees were so plentiful that their value was substantially nothing.

(Continued on page 34)

The Daily March of Nectar Secretion of the Squash

By A. L. Bakke and Setek Ling, Dep't Botany, Iowa State College

As early as 1897 Bonnier (3) realized that the environmental factors had much to do with the secretion of nectar. Pfeffer (15) advanced three possibilities: (1) An unequal permeability of the absorbing and excreting portion of the cell. (2) An equal distribution of solutes. (3) The transformation into sugar of the outer portion of the cell. All three of these or any one of them are osmotic pressure phenomena. Godlewski (6) a short time previous had suggested that nectar secretion was simply a fluctuation in the concentration of the cell sap due to an alternate splitting and recombination of complex molecules. Lepeschkin (9) in his work with *Pilobolus* supported Pfeffer's first proposition, while Wilson's (19) evidence was in accord with the third substantiation of Pfeffer. By washing a nectary at certain times Wilson was able to stop the secretion, but secretion was again resumed by adding sugar to the surface of the nectary. It is not strange then that the whole proposition of nectar secretion should have the possible explanation centered upon the physical status. Haupt (7) found that some nectaries became inactive after being washed, while Livingston (10) compared nectar secretion to guttation. The important point is that there is an exudation of the cell sap through the protoplasm. Kenoyer (8) pointed out that at a uniform temperature the secretion of nectar is a balance between two factors, the accumulation of sugar in and near the flower under the influence of low temperature and increased permeability of the plasma membrane under the influence of high temperatures. By raising the humidity the secretion of water, but not necessarily of sugar, from nectaries is increased. An excessive water supply lessens the sugar surplus, while dilution and washing by rain causes much of the sugar nectary to be lost. Sugar excretion is markedly diminished in darkness. He further contended that the more favorable for growth and the more vigorous the plant the greater the amount of sugar excreted.

Trelease (18) made it clear that nectar was not merely water. If it were, its actions would be more easily understood. To the taste it is sweet, to the sense of smell it is often fragrant, and occasionally it may even be poisonous. Usually the nectar is fluid, but in the *Poinsettia* it may become gummy. Sugars, volatile oils and other organic compounds may be present. Caillais (4) analyzed the

nectar from orange blossoms and found 72 per cent water, 18 per cent reducing sugars and 8 per cent saccharose, as well as 0.970 grams of mineral matter in 100 grams phosphate of iron, 0.535 grams of phosphate of lime, and other carbonates and sulphates 0.184 grams.

Trelease (18) further pointed out that nectar secretion occurs most abundantly on warm days following cool nights. Michener (15) stated that many hours of sunshine daily and a big spread between the night and day temperature seem to be essential for honey production.

The secretion of nectar is really an unusual phenomenon. Sugar is made within certain plant tissues in the process of photosynthesis. The carbohydrate material as manufactured does not pass to the exterior except through injury of one kind or the other. In the case of the nectary the sugar somehow passes out of its original enclosure.

During the normal development of any plant the amount of water given off in the transpiration stream during the course of a twenty-four-hour day is approximately the same as that taken in or absorbed for the same length of time. The rate for each, however, may be quite different. The changes in the transpiration rate from time to time are dependent upon the evaporation environment. The factors influencing the absorption are practically the same throughout. With the lowering of the evaporating environment as occurring during the late afternoon and night, and with a continuation of the absorption at practically the same rate, the cells of the tissues become filled with water, or, in other words, become turgid. During the morning period there is a rapid increase in the evaporating environment, but no material variation in the rate of absorp-

tion. The tissues which were turgid have lost some of their contained water. There is then a status which is designated as "saturation deficit." During the course of a normal day the least resistance to the passage of water occurs during the morning period. It is interesting to note, too, that at this time bees make their most frequent visits.

It is evident that the conditions necessary for excretion are the same as for turgidity or guttation, an adequate amount of water and the presence of solutes. The matter of actual outgo of sugar, while attributed to differential permeability, will probably not be solved until a better knowledge of permeability itself is acquired. It was then thought that in all probability nectar should be found in greater quantities at times when all the plant cells were turgid and when the resistance to the passage of water was least.

In determining whether there was any difference it was necessary to select a particular form of pipette which could be inserted into the nectary and be either weighed or measured volumetrically. The tube finally selected was a special form of pipette made from ordinary glass tubing with a 5 mm. inside bore. A bulb with a diameter of approximately 10 mm. was blown and a fine capillary pipette of 2 cms. drawn out. The tube was cut off 2 cms. from the other end of the bulb. To facilitate suction, a piece of rubber tubing was inserted over the larger end. The tube was first weighed on an analytical balance and again weighed immediately after the nectar was collected. The difference between the two weighings gave the amount of nectar present. In this particular series of tests the male flowers of the squash were used. In order to have a measure of the evaporating en-

Table 1. The amount of nectar collected at hourly intervals from the male flowers of the squash on August 10, 1927, from 7 a. m. to 1 p. m.

Time	Amount of nectar obtained	Temperature	Evaporation as measured by atmometer.	Readings, c. c. per hour	Remarks
7:00 a. m.	.0024 grams	17°C.			Clear, sunshine
8:00 a. m.	.0006	20°C.	0.70		Clear, sunshine
9:00 a. m.	.0005	23.5°C.	2.40		Clear, sunshine
10:00 a. m.	.0000	27.5	3.30		Clear, sunshine
11:00 a. m.	.000	26.0	2.90		Cloudy 10 to 11. Gentle rain 10:45 to 11
12:00 m.	0.00	25.0	3.50		Sunshine, partly cloudy
1:00 p. m.	0.00	23.0	1.80		Rain

vironment, a standardized form of spherical atmometer was employed. Readings were taken of the evaporation whenever nectar collections were made. The temperature of the air surrounding the flowers each time was included in the readings. A record was also made of the condition of the flowers and the nature of the weather.

It is clear that nectar secretion and the opening of the flower are tied up directly with that of turgidity. This being the case, the time which the flower remains open should merit particular consideration. On August 9, at 6 p. m., fourteen blossoms from six squash plants were selected. Seven were male and seven female. At the time of selection all the blossoms were closed, but all the flowers chosen were such as to be ready to open on the following day. At various times on the following days observations were made. It was found that all the flowers, regardless of whether they were male or female, were open on August 9, but were closed on August 10. It would be perhaps natural to expect that a heavy rain would produce a closing of the flowers. It might be expected that there would be at least a partial opening when the rain had stopped and the clouds had cleared away. In this particular case, at least, the flowers remained closed.

In a number of preliminary tests it was found that it was possible to collect the nectar at hourly intervals. It was also clear from other preliminary tests that the secretion on the second day, or after the flowers had closed, was almost negligible. The data for the secretion on August 10 are given in table 1:

On analysis of the data it is evident that the amount of nectar present was exceedingly meager. At only one period, that at 7:00 in the morning, was the amount sufficient for consideration. After 9 o'clock it was not possible to secure any nectar. As no collections were made prior to 7 o'clock in the morning, it was possible that there had been an accumulation for some time at least prior to this. The evidence presented in the above table at least indicates that as far as nectar secretion is concerned attention must be focused at the time the flowers open. On an analysis of the evaporating environment the highest rate took place between 11 a. m. and 12 o'clock m. The rate at 10 o'clock a. m. was also high.

Again, on August 11, a number of male flowers of the squash which would open upon the following day were tagged. The same manipulation was used as before. The procedure for securing the nectar was the same as before. Collections were

begun at 6 o'clock in the morning and continued until 9 o'clock the same evening; resumed again at 5 o'clock the next morning and continued until 10 a. m. August 13. The data are presented in table 2.

Although the nectar harvest on August 12 was begun an hour earlier than on August 10, still it could not have been early enough, for at 6 o'clock there was a greater amount than at 7 o'clock. This might have been the result of an hour's work, but in all probability represented an accumulation for a longer time. It will be noticed that the greatest secretion took place at 9 o'clock, or between 8 and 9 in the morning. From 10 o'clock there was a marked drop until 3 p. m. of the same day, when it was impossible to secure any extraction. This status was in force from that time on. At noon all the flowers were closed. It is interesting to note that there was a slight trace at 9 o'clock on August 13. From 9 o'clock there was a progressive rise in the evaporation rate until 3 o'clock in the afternoon. Even at 4 p. m. there were 4 c. c. evaporation from 3 to 4. After that time there was a rapid decrease. The evaporation rate on August 13 was extremely low. The temperature at 9 o'clock, the time of maximum secretion, was 27°C.; at 10 o'clock, 31°C., and at 2 p. m. 35°C. The temperature on the following day was low: by 10 o'clock it had gotten to 23.4°C. As far as

the weather conditions, August 12 could be considered as a typical summer day.

In the next series of experiments attention was centered upon the time at which secretion began on a normal day. In the preceding series a certain amount of nectar had been exuded prior to the first readings. The first reading was made at 4 a. m. on August 19 and continued at hourly intervals until 6 p. m. The data are presented in table 3.

The data as given in the preceding table again point out the fact that the highest secretion point occurred at 9 o'clock in the morning. The variation in the amount of nectar secreted from hour to hour is given in the accompanying graph (Plate 1). The amount was not as large as on August 12. The range of temperatures was only 12.75°C. The evaporating environment was never over 3.6 c. c. per hour. This was fairly low as compared with the first series.

There is naturally associated with a larger structure the idea that all other physiological processes are in harmony thereof. Whether such a status holds for nectar secretion was made the point of attack along with the march of nectar flow hour by hour. The same procedure was followed as before. The flowers were tagged on the preceding evening and the first extraction was made at 6 o'clock a. m. This time an hourly period from 6 to 7 was made possible

Table 2. Amount of nectar secreted by the male flowers of the squash at hourly intervals from 6 a. m. to 9 p. m. on August 12 and from 5 a. m. until 10 a. m. August 13.

Time of collection	Amount of nectar obtained in grams	Atmometer reading c. c.	Temperature, °C.	Remarks
August 12				
6:00 a. m.	0.0410	—	18.5	Sunshine
7:00 a. m.	0.0385	—	19.0	Sunshine
8:00 a. m.	0.0441	—	21.5	Sunshine
9:00 a. m.	0.0793	1.8	27.0	Sunshine
10:00 a. m.	0.0418	2.5	31.0	Sunshine
11:00 a. m.	0.0303	2.7	31.0	Sunshine
12 m.	0.0141	3.2	35.0	Sunshine. (All flowers closed)
1:00 p. m.	0.0038	3.9	35.0	Sunshine
2:00 p. m.	0.0003	4.4	35.0	Sunshine
3:00 p. m.	0.000	4.4	35.0	Sunshine
4:00 p. m.	0.000	4.0	30.5	Sunshine
5:00 p. m.	0.000	3.00	33.5	Sunshine
6:00 p. m.	0.00	2.40	30.0	Sunshine
7:00 p. m.	0.00	1.40	26.0	Sunset
8:00 p. m.	0.00	0.75	24.0	Clear
9:00 p. m.	0.00	0.40	22.0	Clear
August 13				
5:00 a. m.	0.00	0.49 Avg.	19.0	Clear
6:00 a. m.	0.00	0.80	19.5	Cloudy
7:00 a. m.	0.00	0.30	21.0	Cloudy
8:00 a. m.	0.00	0.40	22.0	Cloudy
9:00 a. m.	Trace	0.40	21.0	Cloudy
10:00 a. m.	0	0.30	23.4	Cloudy

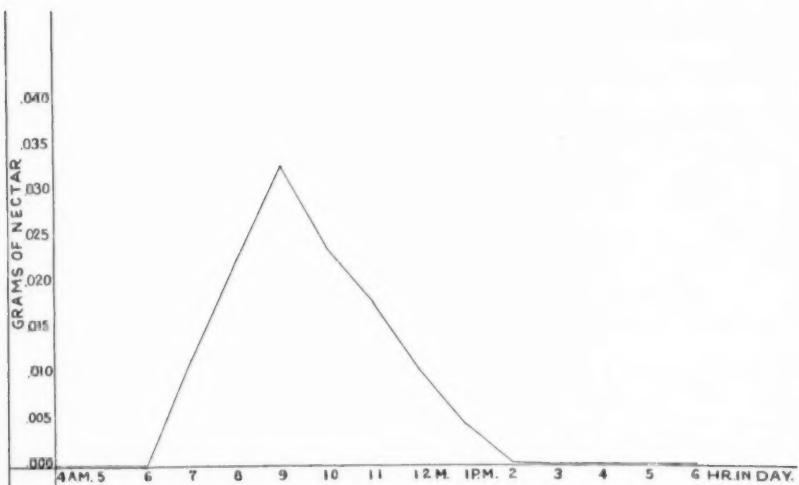


Plate 1. Hourly secretion of nectar in the male flowers of the squash on August 19, 1927

by first emptying all the nectar at 6 a. m. The results are given in table 4.

From the figures presented in the above table and the graph (Plate 2), the greater secretion evidence was in favor of the larger flowers. The maximum quantity for both occurred as in the previous instances, at 9 o'clock in the morning. In both cases there was a decided drop after the maximum period of the morning. At 2 o'clock the secretion was about one-third of what it was at 9. After 4 o'clock the amount was small, and from 7 o'clock on there was no secretion. On the following day, August

19, there was a trace at 7 a. m., but at 8 and 9 a. m. the pipettes had the same weight as at the outset.

It is certainly clear that the highest secretion occurred at 9 o'clock in the morning. This was consistently true throughout. It is also clear that after 2 o'clock in the afternoon there was very little nectar present.

Kenoyer (8) and Davidson (5) have stated that a fairly high day temperature and a low night temperature was necessary for the production of nectar. This was borne out in the August 12 series, where at 9 o'clock the amount was 0.793 gram, and the range of temperature

between 18.5°C. and 35°C., or a difference of 16.5. The maximum evaporating environment was 4.4 c. c. per hour. In table 4, August 19, the secretion for the 9 o'clock hour was 0.0329 gram; the temperature ranged between 12°C. and 24°C., or a difference of 12 degrees. The maximum evaporating environment was 3.6 c. c. The last series had for the small flowers an exudation of 0.0316 gram and the large flowers 0.0648 gram; average, 0.0532 gram. The highest hourly evaporation was 1.8 c. c. The temperature was never above 19.5, and on the day the secretion was measured never below 16.5°C., or a range of 3 degrees. The day was overcast or cloudy most of the time. In the case of the male flower of the squash, a day such as August 12 was highly satisfactory for nectar secretion. In the second series there was a difference of 12 degrees, but the maximum was much higher. In the third series the amount of nectar in the larger flowers was almost as high as in the first series. The temperature range was low and day was cloudy. It would seem, then, that other factors beside the temperature were involved.

The lowest evaporating environment did not coincide with the highest nectar secretion, but at the time of greatest evaporating environment there was a very small quantity of nectar. From what has been determined in this investigation on the male flowers of the squash, one would be led to believe that the proposition involved in nectar was one of saturation deficit of Renner (17) or incipient drying of Livingston (12). It will be recalled that Livingston found that maximum transpiration took place at a time previous to the greatest evaporation. Livingston and Brown (11) have contended, too, that there exists for each leaf at any particular time a maximum possible rate of the inward movement of water through the petiole, and if the rate of water loss at any time surpasses this rate the tissues should have a smaller amount of water contained in them. This incipient drying should be small at first and then much greater; the surface tension of the films remaining should show an increased conformity with it. These same authors, using paper discs, demonstrated that a fall in the moisture content of the paper of 6 per cent produced a corresponding decrease in the rate of evaporation of 5 per cent. A fall of 17 per cent was accompanied by an evaporation rate 8 per cent lower than when the paper was saturated. When 54 per cent of the original moisture was present the rate of water loss was reduced to 77 per cent of that from the saturated

Table 3. Hourly secretion of nectar in the male flowers of the squash, August 19, 1927.

Time of collection	Amount of nectar obtained in grams	Atmometer reading c. c. per hour	Temperature, °C.	Remarks
August 19				
4:00 a. m.	0		12	Flowers began to open at 4:40. Completely opened at 5:10 a. m.
5:00 a. m.	0 Negligible		13	At 5:25 all flowers were opened
6:00 a. m.	0 Negligible		13.5	Sunrise at 5:40
7:00 a. m.	0.0115	0.2	16.0	Bright sunshine
8:00 a. m.	.0224	0.9	18.5	Bright sunshine
9:00 a. m.	.0330	1.5	21.0	Bright sunshine
10:00 a. m.	.0242	1.9	22.2	Bright sunshine
11:00 a. m.	.0180	2.5	23.0	Slightly cloudy
12 m.	.010	1.7	24.0	Slightly cloudy
1:00 p. m.	.004	1.8	22.0	Slightly cloudy
2:00 p. m.	Trace	2.9	22.0	Partly overcast at times
3:00 p. m.	0.00	3.6	24.0	Partly overcast
				All flowers closed except those in shade
4:00 p. m.	0.00	2.6	24.8	Partly cloudy
5:00 p. m.	0.00	3.5	21.5	All flowers closed Bright sunshine
6:00 p. m.	0.00	2.7	20.0	Bright sunshine

Table 4. Amount of nectar secreted at hourly intervals from small and large flowers. August 18-19, 1927.

Time of collection	Amount of nectar contained		Atmometer reading c. c. per hr.	Temp. in C.	Remarks
	Small	Large			
6:00 a. m.	All nectar removed				Cloudy
7:00 a. m.	.0104	.0308	.30	16.5	Cloudy
8:00 a. m.	.0230	.0502	.40	18.5	Cloudy
9:00 a. m.	.0326	.0648	1.00	18.0	Cloudy and sunshine
10:00 a. m.	.0274	.0577	0.70	18.0	Cloudy
11:00 a. m.	.0230	.0483	1.00	19.5	Cloudy
12:00 m.	.0193	.0405	1.30	19.5	Cloudy
1:00 p. m.	.0133	.0224	1.60	17.5	Cloudy
2:00 p. m.	.0120	.0178	1.20	17.5	Cloudy
3:00 p. m.	.0095	.0130	0.80	18.0	Cloudy, many flowers partially closed
4:00 p. m.	.0062	.0072	1.80	18.5	Cloudy
5:00 p. m.	.0021	.0015	1.50	18.8	Clear
6:00 p. m.	Trace	Trace	1.10	18.0	Clear
7:00 p. m.	0.000	0.000	0.40	16.0	Sunset 6:50
7:00-4:00	0.000	0.000		12.0	Clear
August 19					
5:00 a. m.	0.000	0.000		13.0	Sunrise 5:40
6:00 a. m.	0.000	0.000		13.5	Clear
7:00 a. m.	Trace	Trace	0.20	16.0	Clear
8:00 a. m.	0.000	0.000	0.90	18.5	Clear
9:00 a. m.	0.000	0.000	1.50	21.0	Clear

disc. In the process of drying out the leaf tissue in order to equalize forces, must extract water from the protoplasmic membrane and thus reduce the turgidity. In permanent wilting there is a collapse of the two forces.

The foliar transpiring power method of measuring the resistance to the passages of water as used by Livingston (13) and by Bakke (1) has called attention to this same feature in the water relations of an active growing plant. Bakke (2) has further shown that when a plant is allowed to wilt the increased resistance becomes marked.

It would seem that the matter of nectar secretion is so intimately tied up with cell turgidity that any factor which modifies this would necessarily have to be considered. Naturally, weather conditions have been observed to have an appreciable effect upon nectar secretion. From the limited amount of data given it is clear that emphasis should be placed upon the processes within the plant. If we accept the fact that increased turgidity produces a greater nectar secretion, then the matter of increased or decreased turgidity and the factors modifying these should be given particular attention.

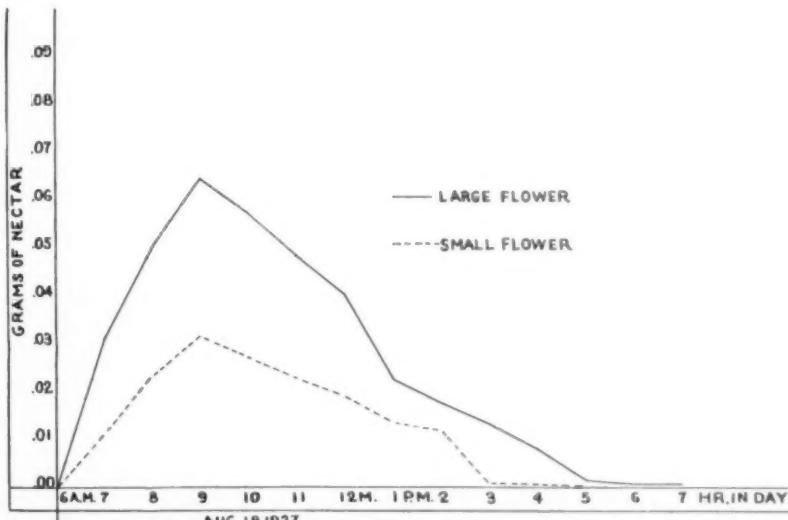


Plate 2. Hourly secretion of nectar in small and large male flowers of the squash on August 18, 1927

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Honey Exports

Report of the Department of Commerce for exports for September has recently been issued. It shows total honey exports for September alone of 1,526,000 pounds. Of this, 1,233,000 went to Germany and 209,000 pounds to the United Kingdom. The balance was distributed equally among many different countries.

During the same period there was exported a total of 10,700,000 pounds of corn syrup. Of this, the United Kingdom took over five million pounds, New Zealand nearly one and a half million pounds, and the balance was distributed among a large range of different countries. In this instance Germany took a very small percentage of the total amount.

Evidently the Germans are manufacturing their own corn syrup, but prefer imported honey.

We have our Department of Commerce to thank for a very much increased activity in aiding foreign commerce along the honey line, and undoubtedly this has been due a great deal to the fact that our Bee Culture Laboratory at Washington is cooperating so well with them.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

STRAW MATS AND WINTER CASES FOR BIG HIVES

It is some time since I have written seeking advice concerning my bee problems. May I ask for a little more?

Of course, I do not expect you to remember, but our main interests are centered in fruit growing and we maintain bees as an aid in pollination. Incidentally it may interest you to know that so far we have had not the slightest trace of spray poisoning among the bees.

Our bees are in the Modified Dadant hive and we use standard ten-frame hive bodies for supers. This has been what local beekeepers call a very poor season. Yet we have two colonies that have stored thirty-two standard frames of surplus, and all but one made two supers, and this one swarmed. We had been expecting it and tried to be on hand and hive them at the time, but they were smarter than we and they were lost.

During odd moments in the summer we made cement slabs for the hives. In August I attended a beekeepers' meeting and saw some winter cases made of half-inch white pine with a metal roof similar to a regular hive cover. These cases were arranged in sections so as to be easily removed and were held in place with small brass screw hooks and eyes. The owner said that he had no trouble at all in wintering his bees.

1. Now, can you tell me just how to make the straw mats you use on your own hives—the size, or perhaps how much they should lap over the edges?

2. How high should I make these cases—that is, how much space should there be above the top of the hive body and under the cover? I had planned on using leaves to fill in around the hive, and a bag on top.

3. Would there be need of setting the hive off and placing a mat of leaves on the slab? This man said nothing about this, but he reduced the entrance and tacked a cellar screen over the flight hole to prevent mice entering.

Last year I placed our hives in a neighbor's bee cellar. This involved considerable work, and since seeing these cases I decided to construct some, as we have suitable lumber here on the farm. The man mentioned said a 2-inch space between the hive and case was sufficient, but he left the inner cover. I know what happens with this, but the straw mats and their construction is something I need instruction on.

I have fed quite a lot of sugar syrup. The bodies are a good lift for a stout man, so there should be stores in plenty. All had young queens in August and September. Considerable goldenrod honey was gathered in September, but the considerable quantity of cane sugar syrup ought to make this safe.

MASSACHUSETTS.

Answer.—First let me say that the winter cases made of light white pine and adjusted together so as to be able to take them apart and put them away for summer are all right. The only objection I have to them is that they are quite expensive for parties having a large number of colonies in different apiaries. The two-inch space mentioned at the end of your letter for the sides is quite sufficient.

1. It would be very difficult to tell, in a letter, how to make the straw mat. But if you will refer to our edition of "The Hive and Honeybee" of Langstroth and Dadant, you will find a cut showing the straw mat, Fig. 73, and a cut of the frame which is used to make the straw mat, at Fig. 81, of the last editions. These are explicit enough in themselves to direct you. I might as well add that we have found no fancy for the straw mat among our friends. It is essentially a European implement, and the average American considers it as too much trouble and prefers to use some old carpets

or mats made of sewed material, which are, of course, just as good as the mat.

2. Leave three to six inches above the brood nest for space to put leaves or bags of absorbents.

3. I do not think there is any need of placing a bag of protecting material under the hive, unless there is a space there that may give cold. Don't use any screen to keep the bees in.

LATE FEEDING

1. I have a swarm that I will have to feed right away. They are in a ten-frame hive, but there are only four frames in the hive now, as this swarm was caught in the latter part of September and only filled four frames. I took the others out and filled them with leaves. The four frames are on one side of the hive. What would be the best thing to feed them, and how?

2. How many pounds of bees does it take to make a good, strong swarm?

3. At swarming time, who leaves the hive, the young queen and bees, or the old queen and bees? Some say the young, and some say the old leave. ILLINOIS.

Answers.—1. You can feed the bees now by using candy made of sugar boiled with water till the water is evaporated. Be careful not to burn it. You place that sugar candy right over the top of the combs. Or, better, feed them with syrup made of one part of water and two parts of sugar. Put it in a tin can with a cover pierced with very small holes and turn the can up over the cluster. Of course, the top of the frames should be sheltered with a cushion or a sackful of leaves to keep the bees warm.

2. A swarm may consist of only four or five pounds of bees or it may have as much as fifteen pounds. It takes more than five pounds to make a good, strong swarm.

3. At swarming time, the old queen always leaves, but all the bees that can fly, or nearly all, swarm out with the queen. The only bees that remain are the ones that are in the field when the swarm leaves and some of the youngest bees.

FOULBROOD GERMS LIVE IN HONEY

In the November issue of American Bee Journal there appears, on page 563, in center of second column, also on page 569, in "Honey in the Limelight," about germs not being able to live in honey. If so, how can the foulbrood germ or the germ causing fermentation in honey be accounted for?

I would appreciate your answer. It seems to me if honey will kill the typhoid germ, according to W. G. Sackett, American foulbrood would have very little chance to live.

MICHIGAN.

Answer.—You are right! The assertion that honey kills germs should be accepted on condition. It cannot kill all germs, and the proof is that the bacteria that cause bee diseases can live in honey. But I believe that the writer of the second article is right when he says that honey (well ripened honey) "absorbs moisture from anything with which it comes in contact." It may destroy some germs in that way. But much of the honey has considerable more moisture than it needs, and it constantly absorbs moisture unless well ripened and kept from moisture influences. Honey that is unripe ferments very readily.

There may be, however, a difference be-

tween germs in their power of resistance, and while the germs that produce the bacilli of foulbrood may not be killed, the germ of typhoid may be less resistant. We have much to learn yet. But it is a good plan to offer criticism wherever we can.

REDUCING THE AMOUNT OF PROPOLIS

1. Can you suggest any method of preventing bees from plastering propolis over ends of frames, joints, etc.? It is almost impossible to get frames loose at times without breaking them. Will painting with vaseline or paraffin help?

2. Is honey recommended as an anti-freeze? If so, can you give dilution? Our minimum temperature is 20 below.

CANADA.

Answer.—1. There are localities where bees have propolis at close quarters and in times of honey dearth they are prone to use it to excess. It is very difficult to prevent this use. Vaseline or paraffin will help, but after trying these things we concluded that we had as soon endure the unpleasantness of too much propolis. If your spaces are neither too great nor too small, you will have a less amount of propolis than if there is plenty of room for it or if the spaces are small enough to encourage them to fill them entirely with it.

2. Honey is an anti-freeze, but makes things rather sticky about an automobile. But a small proportion of it, used with alcohol in the water of the radiators, will give satisfaction.

About half and half water and honey would make an anti-freeze for your minimum of -20 degrees. Perhaps one-fourth honey, one-fourth alcohol and one-half water would make the best mixture for the purpose. Have your gaskets tight.

WINTERING IN A PACKED BOX

I am trying a new way of wintering bees outdoors. I made a box large enough to put three hives in, side by side, with a six-inch space between inside wall of the box and the hives, and eighteen inches of space above the top of the hive. The walls of the box are six inches thick, packed with planer shavings, then boards laid over the top and covered six inches deep with shavings and water-proof cover.

The hives face the east and have an entrance $\frac{3}{4} \times 2\frac{1}{2}$ inches through the walls of the box to the hives. The hive entrances are corked up tight, except the hole through the wall to the hive, so the bees cannot get out on the inside of the box, but can get out and fly around and clean themselves when the weather will permit during the winter. I would like to hear from some good beekeeper on improvements.

I intend to break up about four of my strongest ten-frame hives about the first of June into two-frame nuclei and give each nucleus a queen and full sheets comb foundation. Do you think this is a good way to increase?

Answer.—Your methods are good. The only exception I would take is about the entrance, $\frac{3}{4} \times 2\frac{1}{2}$ inches. This would allow mice to enter, and even if they don't get to the bees, their rummaging in the packing would be bound to disturb your bees. Make the entrance so the mice cannot get in, say $\frac{3}{4} \times 6$ inches.

BEE PAPERS PUBLISHED IN ENGLISH

Could you please give me a list of the bee journals published in the English language the world over, with their addresses?

COLORADO.

Answer.—I am not sure I have the entire list of bee magazines published in English, but I have the following:

American Bee Journal, Hamilton, Ill.; Gleanings in Bee Culture, Medina, Ohio; Beekeepers' Review, Almont, Mich.; Wisconsin Beekeeping, Madison, Wis.; The American Honey Producer, 1214 Garfield Street, Laramie, Wyo.; Western Honey-

bee, 2823 East Fourth, Los Angeles, Calif.; The Dixie Beekeeper, Waycross, Ga.; The Beekeepers' Item, San Antonio, Texas; The Bee World, Benson, Oxon, England; The Bee World, Sonning Common, Reading, England; The British Bee Journal, 23 Bedford St., Strand, England; Bees and Honey, Seattle, Wash.; Because, Watertown, Wis.; Nebraska Bee Tidings, Lincoln, Neb.; South African Bee Journal, Johannesburg, South Africa; Bee Craft, The Drive, Orpington, England; The Beekeeper, Peterboro, Ontario; Australasian Beekeeper, West Maitland, N. S. W., Australia; New Zealand Fruit Grower and Apriarist, Auckland, N. Z.; Scottish Beekeeper, Aberdeen, Scotland.

RAPID COMB BUILDING

1. How can I best get worker comb built up rapidly?
2. Do you like tight bee escape board for top of hives wintered in cellar, or do you prefer some upward ventilation? Would bran sacks covering filled with straw or chaff be a bad plan, to put directly over bees, if a cushion became necessary in some of the hives?
3. Would queen excluder wire do in front of entrance as a mouse guard.

NEW YORK.

Answers.—1. Worker comb can be built rapidly only by supplying the hives with comb foundation, in a good honey season. It does not pay to try to have it built at other times, as wax is very expensive to the bees, costing them about ten pounds of honey per pound of wax.

2. We would leave a full entrance to the hives in the cellar. It might be better to make it shallow enough to keep out mice. We like some upward ventilation also, though not to any extreme. A cushion such as you mention would be all right.

3. Never use queen excluder at the entrance, for it becomes clogged too easily. Out-of-doors the entrance should be too shallow for mice to pass.

FEEDING CANDY IN WINTER

I am feeding a stock of bees with candy, inside a glass-topped section. When the candy box is empty I blow a little cigar smoke under the box to clear bees from top of frame bars, so as to place new box of candy over feed hole. In the empty box just removed are, say, 50 to 100 bees. I place them near the hive entrance and let them run in. Is there a better way to return these bees without disturbing the main cluster? In winter I should think it would be too cold to expose the bees in the box.

ENGLAND.

Your method is all right. In winter, the bees will probably not leave the cluster to go into that box. You should make sure that they have enough before cold days come.

CORN SUGAR FOR SPRING FEED

Will you kindly advise me in regard to corn syrup for spring feeding of my bees? I can get some that is slightly damaged by rusted pails, and I had thought that I could utilize it in some way with the bees. Your valued opinion will be very much appreciated.

MINNESOTA.

Answer.—My opinion is that corn syrup is not sweet enough for bee feed, and if it is damaged by rust it is just that much poorer for your use.

Why not try a little of it, in spring? Just now, in cold weather, I believe you will kill your bees if you feed it.

SHADE BOARDS FOR NEXT SEASON

I am planning to make shade boards for my hives this winter, as none of them are shaded. Do you think this would pay, and what size would you make them?

VIRGINIA.

Answer.—It is certainly worth while to make shade boards for the hives, even if

you have some natural shade, because the hives last so much longer when they are sheltered from the rain.

As to the size of the shades, that depends upon how much you want to spend. A flat top which is just a little larger than the top of the hives is sufficient. But we used to make roofs with two slopes, just like a house roof, only more flat. The only trouble with a movable roof is that it may be blown off by high winds. If you are in a sheltered spot, your roofs will not be blown off. In windy spots some beekeepers use a big, flat stone on top of the roof.

If your hive roofs project a little in front, they will shelter the entrance from the rain.

REMOVE EXCLUDER FOR WINTERING

I want to know which is best, to take the queen excluder off or leave it on between the hive and food chamber for winter?

NORTH CAROLINA.

Answer.—Take off the queen excluder and make the connection between the two stories as easy as possible for the bees. Otherwise some of your bees may find themselves separated from the cluster while going up above and die, in cold weather.

Drat the Air Mail Question, Anyway?

At least that is my personal sentiment. On page 415 of the August number a report is given of twenty-five queens sent over the Boeing air mail plane from Medina to Bakersfield, California. It is said there that, according to officials of the company, this was the "first time bees were ever carried through the air."

Then, in October, Allen Latham, of Norwichtown, Connecticut, wrote he had mailed queens by air mail to a beekeeper in California a year previously. Under the title, "Sorry, Allen, the Palm Is Yours," mention of this is made in the October number, page 508.

Now Jay Smith calls our attention to his article in July, 1926, page 325, where he reports shipping bees by airplane to the west coast for two seasons, reaching their destination in California from Vincennes, Indiana, usually in thirty hours. So Allan will have to give up the palm and pass it over to Jay.

In a letter from the latter, he says: "I looked the matter up and find the first air mail from New York to San Francisco began July 1, 1924. Notice was given here in Vincennes that mail would be received for the air mail at that time. I sent a queen on that date, July 1, 1924, to Ira C. Manchester, San Francisco, and it got there in perfect shape. I sent some more nearly every day immediately thereafter. If Allan beats that, I will surrender, but I know he did not send any west, for my queen got there on the first plane."

Now what shall we say? "Sorry, Allan?"

Tincture of Apis for Bee Stings

By Edwin A. Lewis

In regard to the frequent inquiry as to what will cure bee stings, there is one. It will prevent swelling, but has no effect on the hurt. Of course, that is distinctly unpleasant, but most people can endure it until it stops, if they could just escape the disfiguring effect of the swelling.

To prevent that, get a small bottle of tincture of apis from your druggist. Put ten drops of this in a glass of water and take internally, a teaspoonful every ten minutes, when stung. The first dose must be taken before the swelling from the sting begins to show. After the first few doses, increase the time between doses to a half hour and then to an hour.

This is not an old woman's remedy nor guesswork. I have used it for thirty years and have had it on hand most of the time until lately, when I have built up a natural resistance so that I don't need it. If your druggist hasn't it, he can get it from any drug house dealing in homeopathic remedies.

I have never had an occasion to try the remedy on such a case as mentioned in the August Journal by O. B. Griffin and Mr. Pellett. I don't know that it would be advisable to have the lady members of their families stung so it could be tried, but I would certainly be glad to know that they had some tincture of apis on hand in case of emergency. If it is as effective in cases of poisoning as it is in cases of mere swelling, the whole fraternity ought to know it.

Missouri.

Busy Swiss Bees

According to statistics, 36,000 Swiss citizens keep bees. This means that one family in twenty-five has a beehive. The latest statistics show a great increase of the bee population since 1876, when 177,120 hives were counted in the census which was then taken. Now the number has increased to nearly 300,000, and the Swiss bee industry represents a capital value of 20,000,000 francs.

The annual output of the Swiss hives amounts to 12,000,000 francs worth of honey. The native production of honey is, however, not sufficient for the needs of Switzerland, and 300,000 kilograms of the busy bee's product have to be imported every year. This is not surprising, because every tourist who puts up at a Swiss pension finds on the table at breakfast a little jar of honey, which he is assured is not what the Germans call "ersatz" (artificial) honey. — Christian Science Monitor.

Recollections of an Old-Timer in the Northland

(Continued from page 27)

There was an unwritten law among bee tree hunters that ownership marking would be respected. The tree was safe from all community hunters, except bears, which somehow failed to recognize ownership rights.

There came a day when we were to load cars with emigrant goods and ship to a "cold and dreary country, wild, sparsely settled and wholly undeveloped." Father, being of an experimental disposition, decided to take a colony of bees with us, and selected a strong colony of Italians for the purpose. For at least seven days they were shaken, bumped, thumped and jostled about before we landed at Sheldon, North Dakota, on the twenty-eighth day of March, 1883. At shipping point, spring had opened to a degree before we left, and the bees had been flying in the open for some days. Arriving at destination, winter was still on, so the hive went into the cellar for winter quarters for about two weeks.

One who knows bees, recalling the effects of jostling of hive, will guess as to the condition of that colony after a week of pioneer traffic via box car. In due time the hive was placed in the open and the bees, much reduced in strength, went to work. They increased their numbers a bit and filled the combs in the brood chamber fairly well, but did not swarm that season. Stored in a cellar for the ensuing winter, they went bravely to work the following spring, filled the brood chamber with honey and stored just a bit in the sections of the crate—we called them "crates" in those days instead of "supers," as you do now—but I do not recall that any of these sections progressed sufficiently to be capped. Father removed the queen-cells to prevent swarming, hoping to get the colony strong so good results might be expected the following spring. Again they were placed in winter storage in the cellar, but when spring time arrived they were dead.

We then decided that beekeeping could not be made a success in this climate and made no further effort to bring in additional colonies. We surmised that there were two chief reasons why they would not prove satisfactory here: First, there was no protection whatsoever, the country being absolutely clear and open as far as the eye could see, with not a tree, bush or shrub in sight. And the wind blew, and blew, and blew! The honeybee, returning to the hive, would seek to fly low down to get out of the wind a bit. With this difficulty

in flying, its wings would soon become frayed and, losing its wing power, it would drop into the tall grass, never to reach the hive again. Thus the colony would be depleted unusually fast and unable to increase in numbers with sufficient rapidity to offset the excessive losses.

Again, there were no domestic honey-producing flowers at that time, no white clover, basswood, buckwheat, or sweet clover, and the bees must have been obliged to fly far afield in their search for honey. My opinion is that of the multitude of wild prairie flowers then existing there were very few honey producers. However, this did not end our activities in honey. There was a good market at 25 cents per pound for comb honey, with little or none offered for sale. I peddled honey at all the surrounding towns and to farmer friends, to our financial advantage, as the honey was worth only about 10 cents per pound at the initial purchase point.

In August, 1884, father and I shipped a carload of sheep to the prairies, the first sheep I ever saw or heard of in this state up to that time. In that stock car, at one end, we constructed an unusually large rack for hay for feeding to the sheep while enroute, and—please keep this under your hat—under that hay was about one thousand pounds of some of the nicest white clover honey you ever saw. We paid the freight on the sheep, but the bill for freight on the honey has never been presented for payment by the railway company, and perhaps, if we do not say too much about it, the company may eventually forget to do so.

A few years thereafter, when I first began to operate on my own, I conceived the idea of shipping in extracted honey for sale to my friends. I ordered, from a prominent honey producer of the East, fifty five-gallon cans of extracted honey, weighing sixty pounds each, without any preliminary negotiations with him. It appears that such an order nearly caused him to throw a fit, but there it was, for fifty five-gallon cans, 3,000 pounds, one and one-half tons, from an irresponsible farmer boy away off in the Northwest, with not a penny or a reference accompanying the order. This was probably the largest single order that he had ever received. Well, he scratched his head a bit, thought a while, scratched again, recalled that he knew my parents of a nearby farming district, took a chance, and the honey came along in due time. This was rather a heavy proposition for the boy, but he was equal to the occasion and the honey was sold at \$5.00 per can, including a profit to

me of \$1.00 per can, and the shipment paid for. The order was repeated later that winter, and for some years smaller purchases of twenty to thirty cans were made.

So perhaps I was among the first, possibly the very first person, to ship a colony of bees into this great northland. No other bees were reported to me until some years later, when I learned of a party over in the Maple River Valley who had a small apiary that seemed to be thriving. I believe that possibly I have been the largest individual shipper of honey into the state to the present time, merchants and jobbers excluded.

Now the industry has reached the dignity of a state beekeepers' convention, and they tell us that honey is soon to be one of our chief products. It has all gone beyond my comprehension. I begin to realize that all of my efforts are out of date. I must be nearing an arm chair pension. The things of today are in younger and better hands, and tomorrow all of my activities will be memories. Yet memories are among the greatest of our possessions.

North Dakota.

What Honey Does in Cake

The following is copied from the November issue of "The Steward," a magazine devoted to hotels, restaurants, clubs and the catering world, published in New York City:

An important branch of the baking industry devotes its efforts to cake making. In its desire to help bakers to better understand their problems, the cake section of the American Bakers' Association has recently sent a questionnaire to its members by which it has learned why certain ingredients are used. One of the questions which was answered by leading bakers operating in twenty-four states was:

What will honey do in a cake mix?

Some of the answers were as follows:

It retains moisture.

It colors rapidly.

It keeps the cake soft and moist.

It has a distinctive sweetness.

It increases the volume of the cake.

It has a good spreading action.

It develops a "chewy" mix.

These are all good reasons for using honey in cake formulas, and the American Honey Institute is preparing formulas for cake and bread bakers which will help them better to use honey in their mixes and doughs by personal observation, to see just how honey helps to make better goods which have the qualities emphasized in the inquiries of the cake section of the National Bakers' Association.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

California Convention

The California beekeepers have again been assembled in a great convention. The Modesto meetings on December 6, 7 and 8 were attended by approximately 150 real beekeepers and honey men. For once in his life the writer went through a beekeepers' meeting without having the feeling of unpleasantness on account of caustic attitudes. Harmony was the keynote of this meeting, and I tell you it made us all feel good.

The Modesto groups certainly did themselves proud in the capacity of host and entertainers. The annual banquet was a continuous series of good-natured banters and timely remarks. The statewide famous Modesto High School band, led by their efficient director, gave us many fine musical numbers. Following the banquet, a local old-time orchestra helped with an impromptu dance which will not soon be forgotten.

The program included many instructive papers. A few of the titles are the following:

Bee Insurance.

Pollination of Fruit Trees.

Treatment of Queens with Ultra-Violet Rays.

Importance of Fall Requeening.

Artificial Mating of Queens.

Septicemia of the Honeybee.

Honey Fermentation.

The American Honey Institute.

The new apiary inspection system of California has gone over big with the industry. The State Inspector and some of his able assistants presented a drama on bees and inspection which was enjoyed by all. Eradication of foulbrood from the state is the aim of the burning program being pushed under the direction of the State Department of Agriculture.

Prof. W. B. Herms, of the University of California, gave an address which was most enthusiastically received. A willingness on the part of the U. C. to aid the beekeeping industry as far as possible was expressed. As is already known, the university is giving instruction in bee culture in residence and by correspondence and is pursuing a number of projects in apicultural research. Some assistance in field extension work is rendered also.

The Pacific States are desirous of obtaining a United States Apicultural Field Station to study the prob-

lems peculiar to this region. One of these stations is in operation at Laramie, Wyoming, dealing with intermountain problems, and one in Louisiana studying the southern conditions. Oregon, Washington and possibly other western states will cooperate with California in attempting to procure this valuable addition to the Pacific Coast beekeeping interests. The very important research work of the U. S. D. A. with bees has in the past been largely conducted in the eastern states. Resolutions were drawn, passed, and placed in the hands of a committee to continue with these efforts for the association.

Officers elected for the coming year are:

President, A. M. Henry, Oroville, California.

Vice-President, L. E. Pittam, Riverside, California.

Secretary-Treasurer, C. W. Hartman, Oakland, California.

Chairman Board of Directors, William J. Oats, Lompoc, California.

Jake Haymaker.

Short Course

F. B. Paddock, State Apiarist

The short course for beekeepers of Iowa will be held during Farm and Home Week, for four days, January 29, 30, 31 and February 1. The program will be much more extensive this year than for several years. Under the plan for this year it will be possible to give more complete work covering the problems of apiary management. The schedule each day will be composed of six lectures, one of which will be illustrated. The work will begin at 9 o'clock and end at 4 o'clock, and all lectures will be strictly beekeeping. Special attention is to be given to the problems of those desiring to make a start with bees and those who have a few colonies but want to keep them well. Topics for discussion will include better stock, races of bees, requeening, swarm control, diseases, and wintering. Problems of concern especially to large producers will be presented by speakers of national repute. The problems of production will not consume all the time, for considerable attention will be given to marketing honey. The new Government honey grader will be demonstrated and anyone desiring an official grade of

honey may bring or send a five-pound pail for sample. A new feature is to be offered this year in the form of a comprehensive exhibit. This will include displays relative to queens, package bees, honey containers, extractors, new equipment, and honey samples. Every effort will be made this year to offer a course of lectures which will well repay any beekeeper for attending. It is the desire of the staff to have plenty of material for both the small and the commercial producer.

Washington Beekeepers Meet

Brighter prospects for the bee industry in Washington were indicated at the annual meeting of the Washington State Beekeepers' Association in Yakima, November 27-28.

To cope more adequately with foulbrood and the other diseases that cut down the profits of honey production, it was decided to ask for state funds amounting to \$5,000 a year for bee inspection. This will raise the amount to \$7,000 annually.

Cooperative marketing of honey stands a greater chance of success than it did in the past, according to Prof. O. A. Sippel, of Montana State College, who explained that the Federal Government will give credit to cooperatives that are properly organized and on a sound basis.

Fruit raising and bee farming go hand in hand, J. O. Kane, of White Swan, told the delegates. He pointed out how bees aid in pollination, and their value to the orchardist.

It was decided to meet in 1929 in the western part of the state, the city to be chosen later.

The following officers for the year were elected: President, Fred Mandery, of Tenino; Vice-President, J. O. Kane, of White Swan; Secretary-Treasurer, Dr. R. L. Webster, Washington State College; Executive Committee members, Maurice Townsend of Elma, C. W. Higgins of Wapato, and Charles Brittain of Seattle.

League

Plans are developing rapidly for the annual meeting of the American Honey Producers' League at Sioux City, February 7, 8 and 9. The meeting this year should prove to be one of the most interesting meetings of its kind held for many years. The program of the first day, February 7, is in charge of the Iowa Association. The speakers will include several widely known authorities, who will have a message for those beekeepers assembled. It is planned to have Dr. H. E. Barnard, of the American Honey Institute, give a public address at an evening meeting. He will tell the League of his work at the Institute on February 8. Every bee-

keeper has some idea of what the Institute intends to do, but everyone who can be at Sioux City will want to hear what the future holds for the uses of honey. Speakers who are informed on honey export will appear on the program. An exporter who has recently returned from a survey trip of European markets will tell what he observed and learned. The apiary inspection work of many states will be represented and these men will discuss matters of mutual interest relative to quarantines and regulated shipments of bees and honey. Those in charge of the program hope to cover topics of vital interest to the honey-producing industry. A national organization is vital to all who are concerned with the bees and their products. This covers a big field, magazines, glass and tinplate manufacturers, bee supply manufacturers, honey bottlers, brokers and dealers, package and queen shippers, railroads, apiary inspectors, teachers, horticulturists, seed producers, and consumers of honey. Arrangements are being made for reduced rates on all railroads, so all who can should use the convention certificates issued by all roads.

It is up to the beekeepers of Iowa to help make this meeting the success it deserves. Let everyone help show that Iowa is on the map as a honey-producing state.

F. B. Paddock.

Preliminary Announcement, League Convention, Sioux City, Iowa, Feb. 7, 8, 9, 1929

The 1929 annual convention of the American Honey Producers' League is only five weeks in the future. Details of the educational program will be announced in the bee journals in February. Only certain general ideas of the program and the business session can be given at this time.

A program by the host state will feature the first day. This is in charge of Prof. F. B. Paddock, who will undoubtedly not only bring us excellent speakers from Iowa, but also from the neighboring states, which, in a sense, are cooperators in the reception and entertainment of delegates.

February 8 will be marked by the second National Honey Marketing Conference. This conference was inaugurated at the San Francisco convention and was judged the greatest event of the convention. The program will again be in charge of Mr. A. W. B. Kjosness, General Manager of the Mountain States Honey Producers' Association, Boise, Idaho. This fact assures another worth-while conference of this acute problem of beekeepers. Mr. Kjosness will be very happy to have your suggestions for

the handling of this session. At this time consideration will be given to the work and reports of the League committees on honey grades, transportation, and standards of packing and crop reporting service.

An evening session will be given over to a public reception to, and an address by, Dr. H. E. Barnard, President of the American Honey Institute. This will be the first opportunity our national organization will have to honor and hear the man who is now leading the way on increased honey consumption through cooperative advertising. As the League is a founder member of the American Honey Institute, this occasion will be a momentous one.

One of the difficult problems facing the business session of the convention will be the matter of the continuation or discontinuation of the publication of the American Honey Producer, the official organ of the League. If it is to be continued, more adequate methods of finance must be provided.

In fact, the problem of the continuation of a national business organization is the real issue at stake at this convention. If there seems no hope of greater support by memberships to the League during the coming year than during the past, we had just as well stop the Producer, lock up the shop and ring the curtain down on such a type of national organization. If such is the continued, expressed will of American beekeepers, no one under the sun can prevent such a catastrophe.

At this time the method of nominating the national officers should be explained. The nomination Committee is automatically made up of a representative from each affiliated organization. Affiliated organizations become such by the payment of an initiation fee, which is the only assessment the first year, to the amount of \$6.00 for locals and \$12.00 for state or regional organizations. Any organization wishing a vote on the Nominating Committee should send their dues to J. V. Ormond, Secretary, State House, Little Rock, Arkansas, before the first of February. Likewise, we caution all affiliated organizations to name their official delegate and provide him with credentials.

The vote on those nominated is conducted by closed ballot. Each individual member has one vote, and may vote the written proxies of other members whose credentials he holds. Each affiliated organization will also be entitled to cast one vote for each twenty-five of its affiliated members. The membership fee for each such affiliated member is 25 cents.

We again call your attention to

the special membership rate which is in effect until the convention opens.

For the usual individual membership fee of \$1.50, new members will not only pay their dues until the 1930 convention time, but also will receive all back copies of the 1928 Producer.

Mr. N. Williamson, President of the Iowa State Beekeepers' Association, Bronson, Iowa, is in charge of all local arrangements for the convention. For any information concerning local accommodations, write to Mr. Williamson. Mr. Ormond is in charge of transportation, and the present indications are that special rates to the convention will be secured.

California set a mark to shoot at last year when 400 attended the largest of all League conventions. Let's plan now to carry on and outdo that great attainment.

C. L. Corkins, President.

Important Notice to Members of the American Honey Producers' League

A reduction of one and one-half for the round trip, on the "certificate plan," will apply for members (also dependent members of their families) attending the meeting of the American Honey Producers' League to be held at Sioux City, Iowa, February 7-9, 1929. The arrangements will apply from the following territory:

1. Tickets at the normal one-way tariff fare for the going journey may be bought at any time before the date of the meeting.

2. Be sure when purchasing your going ticket to ask the ticket agent for a certificate. Do not make the mistake of asking for a receipt. If, however, it is impossible to get a certificate from the local agent, a receipt will be satisfactory, and should be secured when ticket is purchased. See that the ticket reads to the point where the convention is to be held and no other. See that your certificate is stamped with the same date as your ticket. Sign your name to the certificate or receipt in ink. Show this to the ticket agent.

3. Call at the railroad station for ticket and certificate at least thirty minutes before departure of train.

4. Certificates are not kept at all stations. Ask your home station whether you can procure certificates and through tickets to the place of meeting. If not, buy a local ticket to nearest point where a certificate and through ticket to place of meeting can be bought.

5. Immediately upon your arrival at the meeting, present your certificate to the endorsing officer, as the reduced fare for the return journey will not apply unless you are

properly identified as provided for by the certificate.

6. No refund of fare will be made on account of failure to either obtain a proper certificate or on account of failure to have the certificate validated.

7. It must be understood that the reduction for the return journey is not guaranteed, but is contingent on an attendance of not less than 250 members of the organization and dependent members of their families at the meeting holding regularly issued certificates from ticket agents at starting point showing payment of normal one-way tariff fare of not less than 67 cents on the going trip.

8. If the necessary minimum of 250 regularly issued certificates are presented to the joint agent, and your certificate is validated, you will be entitled to a return ticket via the same route as the going journey at one-half of the normal one-way tariff fare from place of meeting to point at which your certificate was issued up to and including—.

9. Return tickets issued at the reduced fare will not be good on any limited train on which such reduced fare transportation is not honored.

Annual Convention of New Jersey Beekeepers' Association

The annual convention of the New Jersey Beekeepers' Association will be held at the W. C. T. U. rooms, 214 East State street, Trenton, N. J., January 17-18, 1929.

Thursday Morning, Jan. 17

Chairman, John Conner, Caldwell. 10:00—Report of the Secretary-Treasurer, Elmer G. Carr, Pennington. Report of committees.

11:00—A System of Management for Fall Flow Districts. Elmer G. Carr.

Afternoon

2:00—Every Step in Marketing Extracted Honey. Harold Horner, Mt. Holly.

3:30—The Races of Honeybees and Their Characteristics. Ray Huston, New Brunswick.

Evening

7:30—Demonstration; chocolate coating comb honey. Henry Brown, Cape May C. H.

Friday Morning, Jan. 18

9:30—Beekeeping in England. Professor Willard Thompson, New Brunswick.

10:30—Shall Our Queens Have the Run of Two Brood Chambers? G. Fred Jordy, Flemington.

11:30—Election of officers.

Afternoon

2:00—Handy Devices. Everybody. Bring a sample or drawing if you cannot adequately describe your device without one.

Nebraska Honey Producers' Association

Tuesday, January 8—Forenoon

9:00—Registration. Exhibits open. 9:30—President's address. V. W. Binderup, Minden.

9:50—A New Marketing Organization. H. A. Mark, North Platte.

10:30—Results of Research Work on Solutions for Disinfection of Foulbrood Colonies. C. L. Corkins, Laramie, Wyoming.

11:30—Appointment of committees.

11:45—Nectar and Pollen; Midday Flight. Agricultural College Cafeteria.

Afternoon

1:15—The Present Status of Beekeeping in Nebraska. L. M. Gates, Lincoln.

1:45—The Future of Honey. F. L. Swanson, Council Bluffs, Iowa.

2:40—The Value of Young Queens. Robert H. Walstrom, Omaha.

3:00—The Mountain States Honey Producers' Association and the American Honey Producers' League. C. L. Corkins, Laramie, Wyoming.

3:50—Insect Pollination of Nebraska Orchards. W. W. Yocom, Lincoln.

Evening

7:15—Beekeeping Film. Department of Entomology.

7:40—The Winter Metabolism of the Honeybee Colony. C. L. Corkins, Laramie, Wyoming.

8:20—Working Habits of Field Bees (illustrated). O. W. Park, Ames, Iowa.

Wednesday, Jan. 9—Forenoon

9:15—The Needs of Our Association. Don B. Whelan, Lincoln.

9:30—The Caucasian Race of Bees. C. L. Corkins, Laramie, Wyo.

10:15—A Neglected Phase of Beekeeping. J. G. Jessup, Council Bluffs.

11:00—How Bees Ripen Honey (illustrated). O. W. Park, Ames.

12:00—Consumption of Stores. Agricultural College Cafeteria.

Afternoon

1:00—What the State of Iowa is Doing for the Beekeeper. O. W. Park, Ames, Iowa.

1:45—What Other States Are Doing for the Beekeeper. Don B. Whelan, Lincoln.

2:15—Business meeting. Election of officers.

Bee Course in North Dakota

During the past three years a large number of bee men have taken advantage of the home-study courses offered by the North Dakota Agricultural College.

The nominal registration fee is based on the cost of postage, paper

(Continued on page 42)

THE CRY! "MORE RED STICK BEES"

And we can answer that cry with more pure, roaring colonies than ever, colonies specially arranged for package bees and nuclei. We expect to ship more bees and nuclei than anyone in the state and at a cheaper price than anyone in the South.

The inspectors and leading bee men of many states and provinces in Canada will tell you that RED STICKS are the most productive, easiest to handle, and best mated. What more do you want?

Write for prices, circular, order blanks and our 100% guarantee.

RED STICK APIARIES
BATON ROUGE, LOUISIANA

LAND OPENING

A New Line under construction in **Montana** opens a million acres of good wheat and stock country. Send for **New Line** book.

Minnesota, North Dakota and **Montana** offer best opportunity in two decades to secure good improved farms from banks, insurance and mortgage companies at a fraction of their real value. Send for lists. Improved farms for rent.

Washington, Oregon and **Idaho** have exceptional opportunities in fruit and poultry raising and dairying with mild climate and excellent scenic surroundings.

Write for **Free Book** on state you prefer.

Low Homeseekers Rates

E. C. LEEDY

Dept. J-8 Great Northern Ry.
St. Paul, Minnesota

Golden Queens and Banded Bees

FOR 1929

Untested queens----- \$1.00 each

Tested queens----- \$1.50 each

Bees----- \$1.50 per lb.

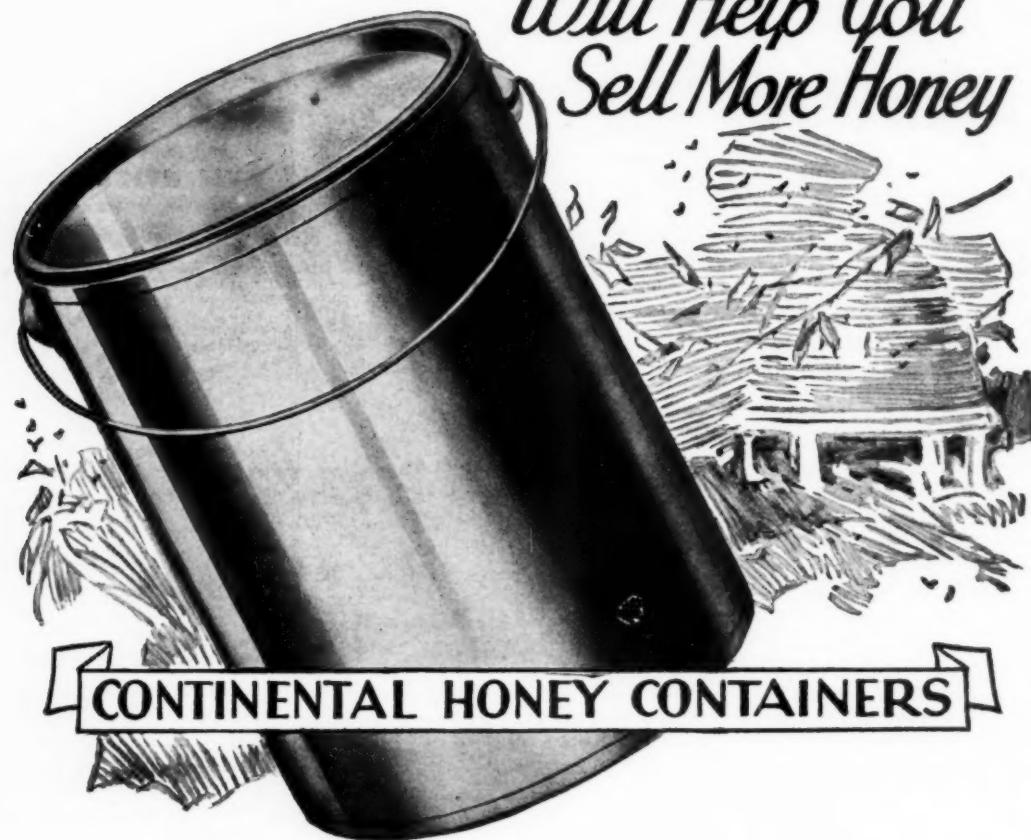
Nucleus----- \$1.50 per frame

Bees inspected; free from disease

J. W. SHERMAN, VALDOSTA, GA.

EVERLAY BROWN LEGHORNS
The beautiful business hen! Wonderful winter layers. Big white eggs. World Record layers America. Queen of all breeds. Order now. New York, Chicago, Hardy, vigorous money-makers. Stock Eggs, Chicks, shipped safely. Catalog free.
EVERLAY FARM Box 55 Portland, Ind.

*Clean, Bright, Tight Cans
Will Help You
Sell More Honey*



CONTINENTAL HONEY CONTAINERS

Continental Honey Containers make a strong appeal to your customers and assure the Honey reaching them in excellent condition. And in this competitive age their economy is most important to you. Every can is carefully tested to insure against leaks.

Made in several styles and sizes to better meet your needs. Complete information, prices, terms or samples may be secured through any of the distributors listed below, or any of our offices. Be sure you buy Continental Quality.

These Distributors Are Ready to Serve You:

The Brock Store
Decatur, Ind.

A. G. Woodman Co.
Grand Rapids, Mich.

Mountain States Honey
Prod. Ass'n
Boise, Idaho

Lone Star Bee
Supply Co.
San Antonio, Tex.

Superior Honey Co.
Los Angeles, Calif.

Seattle, Wash.
Dadant & Sons
Hamilton, Ill.

J. W. Reid
Uvalde, Tex.

G. B. Lewis Company
Watertown, Wis.

Albany, N. Y.
Sioux City, Ia.

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Texarkana

Burrows Hdwe. Co.

Beeville, Tex.

Standard Lumber Co.
Winona, Minn.

Magill & Co.
Fargo, N. Dak.

Sioux Honey Ass'n
Sioux City, Ia.

North Dakota Bee

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Moorhead, Minn.

A. I. Root Co. of Iowa
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St. Paul, Minn.
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Walla Walla, Wash.

Fred W. Muth Company
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CONTINENTAL CAN COMPANY, INC.

4622 West North Avenue, Chicago, Ill.

DETROIT

JERSEY CITY

LOS ANGELES

ST. LOUIS

CINCINNATI

Crop and Market Report

Compiled by M. G. Dadant

For our January crop and market report we asked reporters the following questions:

1. How is crop moving?
2. What amount of honey left on hand?
3. Are prices up to last year?
4. Are they advancing?

HOW CROP IS MOVING

Throughout the country we do not believe there is much change over last year in the way the crop is moving in a retail way. In other words, while there is not as much honey on hand to sell as last year, the demand in the rural communities does not seem to be any better than last year and there are still considerable quantities of honey left on hand. The big difference between this winter and last, however, is that in a wholesale way honey is moving better, especially in carlots. Practically every report we have from carlot sellers of honey is to the effect that honey is moving very readily.

There are, of course, some sections of the country where honey is moving better than a year ago, and New England is one of these.

AMOUNT OF HONEY LEFT ON HAND

The amount of honey left on hand is much less than it was a year ago as a total, and also much less in most regions in a local way. The New England States are very well cleared of honey and New York and New Jersey have perhaps not over 20 per cent on hand. In the Southeast, Georgia and Florida alone report very heavy hold-over yet, amounting to perhaps 45 per cent, and Mississippi the same. The balance of the states are well cleaned up comparatively, not having over 20 to 25 per cent on hand. Louisiana, which previously reported a very heavy crop on hand, has been able to clear up the situation by pooling several cars for export shipment. In Texas honey is moving along fairly readily and, owing to a short crop, there will not be very much left on hand in another month or two. The carryover now does not exceed 25 per cent. In the Central West, also, the honey on hand is not over 20 to 30 per cent.

It is the plains area that perhaps has the largest carry-over yet, and in some of the states this amounts to 40 per cent, and one state 50 per cent still on hand. The intermountain sections are very well cleaned up, and California, which had a very short crop, is practically without any surplus honey to sell.

There are two or three items which enter into the honey holdover so far. A number of western producers are holding for a better price, and we have two or three reports of better than 8 cents in carlots being received for honey. In the central states and in some other sections there is considerable carryover of honey which is not up to standard grade. We believe we are safe in stating that the percentage of honey which was of a lower grade this year in the central region was far greater than usual, and, of course, honey is harder to move, lacking a carload market for the same. In the Southwest, where carloads were available, these have moved readily to foreign and other markets, but we be-

lieve that the carryover on January 1 is caused principally by the fact that there is an inferior quality on hand and, secondly, by the fact that the demand now seems to be for carloads of honey and not for local lots.

Whether this is due entirely to the foreign demand or more especially to the demand of the newly formed combine of honey packing interests is hard to determine. Undoubtedly both have had their effect, and the recent advertising campaign as conducted by Preserves and Honey, Inc., undoubtedly has disposed of a whole lot of honey and necessitated the purchasing of additional carloads from western producers.

Should such a contingency continue in future years, it will apparently mean that the less than carlot producers of honey in the Central West and other states will have to combine to ship in carlots or else be content with a local market and at a less price comparatively than they would be able to obtain in carload lots.

PRICES COMPARED TO LAST YEAR

In most instances, as mentioned previously, prices are on a parity with last year. The Southeast and Texas report prices perhaps 1 to 2 cents lower than a year ago. Minnesota reports retail prices somewhat lower, and Oklahoma has undoubtedly had a price-cutting war, because prices are equal or a little in advance over last year. This report is, of course, for prices over the retail counter.

There is undoubtedly an improvement in carlot prices of fine, white honey over what they were in 1927, and the demand for carlots remains stable.

ARE PRICES ADVANCING?

Except for the decided improvement for demand in carload lots of honey, we do not believe there is much tendency for honey prices to advance. We have one or two reports from the northern section of a decided advance in bakers' quality honey because of the very large demand from bakers. Undoubtedly this is due to the efforts of the newly formed American Honey Institute, which is getting fine publicity through all of the baker journals.

SUMMARY

All in all, we believe the honey situation is far better than it was a year ago, and that the stimulation of demand which usually occurs in January will rapidly clear up the stocks of all good white honey. There may be a holdover of some of the inferior or darker grades, largely due to the fact that the carlot buyers of honey are not looking for darker grades, but to the white grades.

Such carryover as there may be of the darker honey, however, is far more than offset by the rapidity of movement of the finer white honey. Undoubtedly this is going to make for a stimulant in the activity of the white honey producer, since his situation is far improved over that of the producer who has to seek his own market locally or ship out a baker's quality of honey.

All in all, the situation, we believe, is improved over a year ago and apparently is working itself into position for a future solution.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 7c per word, with no discounts. No classified advertisements accepted for less than ten words. Count each initial or number as one word.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used bee-keeping equipment or of bees on combs must be accompanied by a guarantee that the material is free from disease or be accompanied by a certificate of inspection from an authorized inspector.

BEES AND QUEENS

PACKAGE BEES—April and May delivery. Write for prices with special offer. The Crowville Apiaries, Crowville, La.

PACKAGE BEES—Gentle, hardy northern. Van's Honey Farms, Hebron, Indiana.

GOLDEN ITALIAN QUEENS—Producing large beautiful bees. Solid yellow to tip. Package bees and nuclei. Circular free. Dr. White Bee Co., Sandia, Texas.

OUR bees and queens pay big dividends the first year. We can handle any sized order, any time. Let us name you our best prices. R. V. Stearns, Brady, Texas.

GOLDEN Italian queens and nuclei (or package bees) for 1929, the big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, \$1.00 each; 6, \$5.00; 12, \$10.00; 100, \$75.00. Tested, \$2.00 each. Two-frame nuclei or two-pound package with queen, \$4.50 each; ten or more, \$4.00 each. Safe arrival guaranteed. Health certificate furnished. E. F. Day, Honorable, Ala.

QUEENS and Bees for 1929. We can supply any style package. Not a single dissatisfied customer. Try our popular special, two frames of brood, four pounds bees and young queen, \$6.50; five for \$30.00. Prompt service and satisfaction. The Peerless Apiaries, Box 54, Marksburg, La.

FOR packages and nuclei, early delivery, write Elder Curd Walker, proprietor of the Vidalia Apiaries, Vidalia, Ga.

PACKAGE bees, queens, nuclei, at prices unheard of on orders booked in January. High grade Italian bees. No disease. Safe delivery guaranteed. Write today. Cotton Belt Apiaries, Paris, Texas, Route 2.

FATHER COULOMBE APIARIES—Yellow Italian queens and bees, "St. Romain Honey Girl" strain, shipped combless with sugar syrup feed. Two pounds bees with queen, one to nine packages, \$3.25 each; ten or more, \$3.00 each. Three pounds bees with queen, one to nine packages, \$4.25 each; ten or more \$4.00 each. Queens \$1.00 each; dozen, \$11.00. No disease. State certificate with each shipment. Safe delivery and all losses replaced upon "bad order" express receipt guaranteed. Orders booked without deposit. J. Lloyd St. Romain, Mgr., Montegut P. O. Telegraph office, Houma, La.

WILL EXCHANGE package bees for good real estate, or anything valuable. Van's Honey Farms, Hebron, Ind.

ITALIAN queens and package bees for spring delivery. Get our prices and a free package. We sell bees according to the price of honey. We guarantee safe delivery and satisfaction. Health certificate with each shipment. The Mangham Apiaries Co., Mangham, La.

BRIGHT three-banded Italian queens, package bees, finest quality. Write for 1929 prices. Taylor Apiaries, Luverne, Ala.

HIGHEST quality, prompt shipment, reasonable prices. Package bees and queens of the highest quality shipped at the time you want them, for a price that you can afford to pay. Safe arrival and satisfaction guaranteed. Health certificate with each shipment. Write for description and price list, also prices on large quantities. J. M. Cutts & Sons, R. I., Montgomery, Ala.

CONSERVATIVE booking and efficient service in package Italian bees. Two-pound package with queen, \$3.50. Other packages priced accordingly. H. J. Sudbury, State Normal, Natchitoches, La.

PETERMAN'S select Italian queens and package bees. Queens: 1, \$1.00; 6, \$5.50; 12, \$10.00; 25, \$20.00; 50 or 100, 75c each. Package bees with queens, 2-lb.: 1, \$3.00; 5, \$13.75; 10, \$25.50; 50, \$125.00. 3-lb.: 1, \$4.00; 5, \$18.75; 10, \$34.50; 50, \$165.00. H. Peterman, Lathrop, Calif.

PACKAGE BEES—Gentle, hardy northern. Van's Honey Farms, Hebron, Indiana.

"GRAY CAUCASIANS"—Our prices for bees and queens for 1929 delivery are ready; send for them, they are free. Our foundation stock are from our direct imported mothers. Our bees are pleasing others; we believe they will please you. They lead all other races in quantity honey production, and are gentle and very easy to handle. Bolling Bee Co., Bolling, Ala.

PACKAGE bees and Italian queens. Our only business for nearly twenty years. Get our prices and express rate on any size order. Circular free. J. E. Wing, Cottonwood, Calif.

BEES AND QUEENS—Golden and three-banded Italians, also Carniolans, bred in yards four or five miles apart. Satisfaction guaranteed. I began advertising bees and queens in old American Bee Journal thirty-seven years ago. Write for price list. C. B. Bankston, Buffalo, Texas, P. O. 65.

MR. BEEKEEPER—Before placing your order for bees, write me and get my prices. I have had nearly forty years' experience as a beekeeper and believe I can give you as good service as anyone else. Everything I send out absolutely guaranteed; all losses, when accompanied by a bad order receipt from express agent, made good at once. Write and get my prices before placing your order elsewhere. O. P. Hendrix, West Point, Miss.

PACKAGES and 350 colonies for sale. Packages with queens introduced. Have never had disease in yards. Certificate of inspection. Best reference. Get our low prices and reasons why you should buy colonies instead of packages. A. O. Smith, Mt. Vernon, Ind.

BOOKING orders for my thrifty Caucasian three-frame nuclei for May delivery, also queens. Yards inspected; no disease. Peter Schaufhauser, Havelock, N. C.

WINTER QUEENS—Good tested three-band \$1.00 each. I send queens anywhere any month of the year. D. W. Howell Shellman, Ga.

LEATHER COLORED ITALIAN QUEENS—\$2.00; after June 1, \$1.00. Tested, \$2.00. A. W. Yates, 15 Chapman St. Hartford, Conn.

HIGHEST grade Italian queens—Tested, \$1.50; untested, 75 cents. Package bees, one pound, \$1.50; two pounds, \$2.50; three pounds, \$3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed. T. L. Davis, Buffalo, Leon Co., Texas.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, \$1.50; twelve, \$14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

FOR SALE

FOR SALE—100 colonies of bees with complete equipment, eight-frame hives; located in sweet clover district of western Minnesota. For details, write L. D. Leonard, 10 Parkway Drive, Pelham, N. Y.

FOR SALE—200 colonies bees. Equipment all new and bees in excellent condition. Certificate furnished at time of sale. Fuller particulars write to P. O. Box 376, Riverside, California.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

HONEY AND BEESWAX

FOR SALE—White extracted clover honey. Duvalle Brown, Long Branch, N. J.

FOR SALE—Ten cases, two 60-pound cans each, fine clover-basswood honey, 9 cents. Valley View Apiaries, Savanna, Ill.

CHOICE clover extracted honey, put up in 60-pound new containers. Write for quotations. M. Larson & Sons, Box 144, Gardner, Ill.

FOR SALE—6900 lbs. sweet clover honey in new 60-lb. cans at 8c. Sample free. M. W. Thompson, Toronto, S. D.

HONEY FOR SALE—Best quality, lowest prices. D. Steengrafe, 116 Broad Street, New York.

WANTED—Light honey. Send sample and state price. J. K. Wolosevich, 2516 Archer Ave., Chicago, Ill.

WANTED—White and amber honey. Send sample and lowest cash price. W. J. Forehand & Sons, Fort Deposit, Ala.

WHITE COMB, weighing 22 lbs. per case, \$4.80; amber, \$4.25. Three- and six-case carrier. White bulk comb, \$11.00 dozen five-pound pails; amber, \$10.00. Ed Mitchell, Castalia, Ohio.

FOR SALE—Extracted honey in 60-pound cans. Henry Hettel, Marine, Ill.

STURDEVANT'S CLOVER HONEY—St. Paul, Neb. Any quantity.

CLOVER and buckwheat blend at 7½c pound. One-pound sample 25c. F. W. Summerfield, Grand Rapids, Ohio.

WANTED—Honey in trade for chicks; 10c pound in pails. Ames Hatchery, Deerfield, Wisconsin.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Co., 217 Broadway, New York.

FOR SALE—Buckwheat comb and extracted. Write H. G. Quirin, Bellevue, Ohio.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

FOR SALE—Light amber honey in 60-lb. cans; clover and buckwheat mixed. J. F. Moore, Tiffin, Ohio.

WANTED—White clover extracted honey. Send sample and your lowest price. A. L. Haenseroth, 4161 Lincoln Ave., Chicago, Ill.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

FOR SALE—Fancy, extracted, white clover honey in new 60-pound cans. None better on the market. Ten cents for two cans or less; nine and one-half cents for more than two cans, f. o. b. here. Also amber honey. Quality guaranteed. Sample 25c. E. J. Baxter, Nauvoo, Ill.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Illinois.

FANCY white clover extracted honey, any sizes. Prices and samples on request. Kalona Honey Company, Kalona, Iowa.

SHALLOW frame white comb honey and white extracted honey. The Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, 1235 Lincoln Way West, South Bend, Indiana.

FOR SALE—Northern white, extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Illinois.

SUPPLIES

BEE SUPPLIES at factory prices. Hoffman brood frames \$3.95 per hundred. Send for free price list today. Schmidt Bee Supply Co., 1420-22 Hager Ave., St. Paul, Minn.

FOR SALE—Foundation, bee brushes, comb honey cartons, feeders, nailed and painted bodies, bottoms, covers, and bodies, veils, sections, a big assortment of frames, excluders, comb and extracting supers k. d., and many other items in good, usable condition. Reason for selling, items no longer listed in our catalog. Prices the lowest anywhere for the value. You can address G. B. Lewis Company, at Watertown, Wis., Albany, N. Y., Lynchburg, Va., Texarkana, Ark., or Sioux City, Iowa.

ROBINSON'S comb foundation will please the bees, and the price will please the beekeeper. Wax worked at lowest rates. E. S. Robinson, Mayville, Chau. Co., N. Y.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000.
Superior Honey Co., Ogden, Utah.

SHIPPING CAGES—Comb and combless. Sugar pine; machine made; in flat; no metal. Best and cheapest you can find. Sample 15 cents, prepaid. E. P. Stiles, P. O. Box 422, Houston, Texas.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.
The Colorado Honey Producers' Ass'n, Denver, Colo.

"**BEEWARE!**" and Dadant's Wired Foundation for the Northwest. Catalog prices. F. O. B. Fromberg, Montana. Beeswax wanted. Write for prices.
B. F. Smith, Jr., Fromberg, Mont.

MISCELLANEOUS

IMPROVE conditions for bees; grow vitex along fence rows, lawns and waste places. Grows throughout the United States; continuous blooming from May to October; grows rapidly. Price \$1.50 for ounce seed. Smaller amounts proportionate price.
Joe Stallsmith, Galena, Kansas.

FIRE—No more fires. New method of rendering wax. Capping melter; liquefies honey and bee feeder. Send for circular. George Pratt, Topeka, Kans., 2235 Penn Ave.

YOU can read in either English or French the report of the Seventh International Congress of Beekeepers held at Quebec, September 1-4, 1924. Not more than a dozen copies left. Orders filled in rotation. Postpaid, \$2.25. American Bee Journal.

WESTERN HONEY BEE 2823 E. 4th St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. \$1.00 per year. Send for sample copy.

GEORGE S. DEMUTH is editor-in-chief of *Gleanings in Bee Culture*. Its field editor is E. R. Root. This means a most carefully edited, able bee journal. Subscription price, two years for \$1.00. Write for sample copy. *Gleanings in Bee Culture*, Medina, Ohio.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

MAKE queen introduction sure. One Safin cage by mail, 25c; 5 for \$1.00.
Allen Latham, Norwichtown, Conn.

THE DADANT SYSTEM IN ITALIAN—

The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

WANTED

WANTED—Bees and equipment. What have you? Iver Andersen, Lake Benton, Minn.

WANTED—Position with large honey producer or queen breeder, by single young man. Lawrence Robins, Mt. Sterling, Ill.

WANTED—Bee work for coming season, extracted or comb honey production. Can leave any time. Robert Hassard, Box 311, Redsport, Oregon.

WANTED—Package man for season starting April 1, 1929. Must be hustler and very careful.
Red Stick Apiaries, Baton Rouge, La.

WANTED—Farm-raised, young, healthy men of good habits, experienced in extracted honey production and acquainted with brood diseases. We operate 800 or more colonies under strictly modern and highly efficient methods. Give age, weight, height, experience along agricultural lines, especially honey production, also full references as to experience and character, and wages expected, in first letter or expect no reply.
The Hofmann Apiaries, Janesville, Minn.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices charging but a pound for wax rendering.
Fred W. Muth Co.
204 Walnut St., Cincinnati Ohio.

Why People Don't Buy Honey

By R. Diemer

There are many reasons why people don't buy honey. The most heard of excuse is, "I have no money." This is a perfect excuse, if true, but many times it is only an excuse to get rid of the peddler. No one hears more lies than a peddler, but he must be careful and not lie himself. I have heard many strange answers and will give here a few of them: "I don't like the taste of honey." Many of them never had a taste of good honey. "It is too sweet, it hurts my teeth; it is too hot to eat honey (in summer); it burns my stomach; it gives me the colic,

gives me the cramps, gives me the hives, gives me indigestion, causes me heartburn." Some strange excuses not very often heard are: "It makes me sneeze, it gives me a cold, gives me a headache." One excuse very often heard is, "It makes me fat," often from people who would be much better off if they had ten to twenty pounds more flesh.

There is every kind of excuse, real and fancied, but very seldom will you hear that people object to the price. The price does not mean anything, if the people want it, so it is the business of the beekeepers to make the people want honey. But how? By showing them that they will benefit by using honey instead of syrup or sugar. It is easier to sell people honey than it is to make them use it. Many times I have sold a pail of honey that was still on the shelves after five or six months, or even after a year.

I have distributed recipes and booklets by the tens of thousands. They did a lot of good, but one man cannot do it all, especially if the competitors do not hold to a living price. The price of table honey here this year was 8 cents per pound in ton and carload lots; now one beekeeper is peddling honey at 55 cents for a five-pound pail. That is 11 cents per pound. I would like to know how that fellow is figuring; 40 cents for the honey, 7½ cents for the pail, the label, the work to put it up, liquefying, etc. What wages can he make even if he could sell one thousand pounds each day? But he does not sell even one hundred pounds in a day. I guess he is not figuring at all, but thinks he is making 55 cents every time he sells a five-pound can of honey, and wonders why he cannot pay his bills.

California.

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American Bee Journal

Hamilton, Illinois

Meetings and Events

(Continued from page 37)

and mimeographing. The instruction is free; all reading material is available free of charge, but every student will be urged to subscribe to some good journal specializing in the field in which he is interested.

Detailed information about these courses can be obtained by writing to the Department of Correspondence Courses at the Agricultural College of North Dakota.

The following subjects will be available this year: Poultry, Beekeeping, Fruits, Vegetables and Trees, Forage Crops, Dairying, Sheep Husbandry, Swine Husbandry, Beef Cattle, Small Grains, Farm Structures, Farm Management, Advanced Poultry, Milk and Its Products, Introductory Survey of Scientific Agriculture, Turkey Raising, and Practical Business Letter Writing.

Illinois State Convention

The beekeepers attending the thirty-eighth annual meeting, December 6-7, found something of real interest for them at each session. Dr. H. E. Barnard gave first-hand information on the aims and purposes of the American Honey Institute. His address outlined in a very interesting way his program of disseminating information on honey to the public. There is a considerable demand for articles of an educational nature by the publishers of magazines. The baking industry and departments in many magazines on home economics, food and nutrition are looking for some new and interesting material. The American Honey Institute is in an especially favorable position to furnish material of this nature, since its name and organization is such as commands attention and confidence. The beekeepers were assured that a movement is going forward whereby new uses for honey are to be investigated through one of the Federal bureaus at Washington, D. C. The entire program of the American Honey Institute is one of establishing the worthy, but neglected, place of honey in the minds of the public and its great value as a food as well as for other purposes.

The convention was further pleased in hearing the address of Prof. P. H. Tracy, from the Dairy Manufacturing Department of the University of Illinois, on the results of his study of honey in the manufacture of ice cream. A number of different kinds of honey were used in this work and the best grades of the different varieties of clover honey, such as sweet clover, white clover, and alfalfa, were tried with satisfactory results. This was demonstrated by the dis-

tribution of a generous dish of honey ice cream to each one in the audience. The cream was pronounced excellent and the entire large freezer was soon consumed. Honey was used without the use of any sugar, but a little gelatin was included. Honey alone in cream results in a rather soft body, resulting in the need of lower freezing temperatures and a better pack when shipping than is in use at the present time. Professor Tracy is very enthusiastic regarding the possible outlet of honey in the manufacture of ice cream, and expects to continue his investigations along this line, believing that manufacturers of ice cream will find a profitable opportunity in making commercial honey ice cream for the trade. Professor Tracy's paper will be published in a future number of the American Bee Journal, and a more technical paper will occur by him in some scientific publication at a later date on the same subject.

The addresses by Dr. Barnard and Prof. Tracy were so well received that resolutions were drawn up thanking them and commending their work.

Additional topics on honey were discussed by Mr. C. Swanson of Daubert & Sons and Mr. H. H. Root of the A. I. Root Company.

Mr. Swanson pointed out the importance of preparing honey properly for market, urging an attractive package containing a nice grade of honey at all times. Honey should not be overheated, and the canning temperature of about 140° observed to maintain the delicate flavor and aroma. In fact, German merchants claim the diastase, an enzyme which changes starches to sugar, is rendered inactive at a temperature above 140°. The beekeeper can buy honey to resell regular customers, both for the margins of profit and to keep them continuously supplied, thereby developing and holding a trade so desirable for the seasons when he has a bumper crop of his own.

Mr. Root tells us that honey can be overheated even at so low a temperature as 135° if kept there for hours or days. The length of time that heat is applied and the temperature determines the amount of injury in color and flavor. A number of samples of the same honey held at a steady temperature of 135° shows a gradual and considerable change in color from day to day. A temperature as high as 160°, if held for only a short time, will not affect honey to any extent. In case a temperature above 150° is reached, it should be reduced rapidly by introducing cool water in a jacket around the tank and also by stirring the

honey in order to bring the temperature down to the desired point quickly. Packing hot honey promptly in small packages will cool it down rapidly, however, so this is usually done by most beekeepers.

It was stated that Preserves and Honey, Inc., have set aside a fund of \$15,000 for a honey broadcasting campaign from Station WJZ, New York City, at 2 p. m. Wednesday of each week, in addition to a large city advertising campaign for honey in daily papers. The outlook for prices next year seems to be good, as the market is not flooded at any point and producers do not appear to be holding an oversupply for this season of the year.

It was pointed out by H. C. Dadant that beeswax is in good demand at all times and that there need be no fear of overproduction. Every ounce of combs, scrapings, and cappings about the apiary should be saved for the large percentage of beeswax which is obtained. Much beeswax is no doubt lost throughout the country annually. The ravages of beemoth, although well known, are frequently allowed to occur, but can be prevented. A little labor in time will yield nice, clear profit in beeswax. Much wax is lost by scrapings and sediment from beeswax cakes being thrown away. This material, which is usually watersoaked, is rich in beeswax after the moisture has dried out. Some of the cream of the beekeepers' profit is to be found here.

M. D. Farrar showed by the use of charts the change in colony weight on scale hives during the season. He urged the weighing of colonies before packing for winter and early in spring. Since the colony weight is a good indication of the change in honey stores, it was urged that each apiary possess at least one colony on scales and that this be observed late in the evening for a record of the day's honey crop. A good, normal colony on scales would then be a good indication of the progress of the harvest and when supers are needed, without the necessity of looking into the hives more than once each week or two.

Reports of the officers of the Association were well received and their re-election occurred by a unanimous vote. The reappointment of Mr. A. L. Kildow, State Inspector, was recommended. Mr. Kildow now has a very good force of some thirty to forty inspectors, and their interest and activity, combined with the appropriation for the coming biennium, should warrant good control of bee diseases in the near future. A committee with President A. C. Baxter in charge assures us that adequate



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Successful beekeepers use this book as an
aid in their daily problems. The teachings
of Langstroth and the experiences of the
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American Bee Journal

Hamilton, Illinois

appropriation for inspection will be
secured the coming biennium.

In recognition of their many valuable
services and long membership,
the convention voted honorary life
membership to our venerable friend
James A. Stone and to Dr. A. C.
Baxter.

The banquet was a happy social
event. Treasurer Elmer Kommer
found his funny-bone in good working
order.

The officers elected for the ensuing
year were as follows:

A. C. Baxter, President.

V. G. Milum, Secretary.

Elmer Kommer, Treasurer.

C. A. Mackelden, first Vice-President.

Edward Heldt, second Vice-President.

E. Warren, third Vice-President.

Edward Peterson, fourth Vice-Presi-
dent.

A. G. Gill, fifth Vice-President.

La Junta Beekeepers Meet on Nov. 13

Beekeepers of southeastern Colorado held their winter meeting at La Junta, November 13 and 14. C. S. Miller, of Manzanola, President of the Colorado Cooperative Beekeepers, presided.

Beekeepers of the Arkansas Valley, San Luis Valley and the Trinidad district attended. Speakers from other sections included Frank Rauchfuss, Colorado Honey Producers' Association, Denver; Dr. A. P. Sturtevant, and J. E. Eckert, United States Bee Culture Field Station, Laramie, Wyoming.

Utah Winter Meeting

The annual meeting of the Utah State Beekeepers' Association will be held at Ogden, January 8 and 9. By reason of the fact that the Ogden Livestock Show will be held at that time, beekeepers attending the meeting can secure a special round-trip rate of one and one-third fare. The convention will be held at Hotel Bigelow.

Short Course in Beekeeping at Ithaca

Dr. E. F. Phillips announces the short course in beekeeping to be held at Cornell in Ithaca, the week beginning January 28, 1929.

They are to have, this year, honey as the special topic of the week, in the hopes that this subject in all possible branches may be presented in a non-technical manner, thus helping to make these facts available to beekeepers in bringing honey to the attention of their friends and customers.

A full program is being provided for the entire week.

Dr. Phillips announces that in view of the fact that the discussions of honey will be somewhat consecutive, it is best for those who plan to come to be there Monday noon and stay through until Saturday noon.

Beekeepers of all states are welcome and there is no tuition. Rooms at reasonable rates and meals can be had at the university cafeterias.

Western Honey Wins at Royal Fair

Reports of awards of prizes at the Royal Fair at Toronto indicate that western honey carried off more than its share of the prizes. On the extracted honey in glass, first prize went to H. C. Baker of Saskatchewan, second to H. N. Thompson of Manitoba, and third to Walter Dunavon of Saskatchewan.

The comb honey prizes all went to Ontario, as follows: First, Allan T. Brown; second, George Plant, and, third to George Brotherwood.

Granulated honey in glass: First to Mrs. John Mumby of Manitoba, second to J. Mackison of Manitoba, and third to Spencer Pearson of Ontario.

The prizes on buckwheat honey in glass: First to Newton Taylor of Ontario, second to W. D. Wright of Manitoba, and third to Allan T. Brown of Ontario.

First prize on beeswax went to H. T. Luther of Alberta, second to Spencer Pearson of Ontario, and third to William Barrett of Ontario.

Display prizes: First to Guy L. Muonson and second to William Barrett, both of Ontario.

Spiderwebs and Sunflowers

Do you know how spiders manage to stretch a web from one tree to another, sometimes across a little stream? Do they carry it across?

Mrs. Mary G. Phillips has written a very interesting book for children on the subject above mentioned. But it is not only interesting to children, it is most fascinating for grownups. It is on par with her previous works, "Ant Hills and Soap Bubbles" and "Honeybees and Fairy Dust."

The book is published by Macrae-Smith Company, Philadelphia. Price is \$2.00. We can get copies for our readers if they want them.

Why Not You?

J. Wood Perry, of Rocky Ford, Colorado, a grocer, took with him thirty gallons of honey to test the market between Rocky Ford and Oklahoma. He sold it all; the proceeds more than paid the expenses of the trip, and now repeat orders are coming in.

J. D.

Counter Tank System of Honey Sales in Western Australia

In selling honey in western Australia, counter tanks are being used. Storekeepers are charged \$1 each for the use of the tanks, which amount is credited upon returning the tank in good order. The idea was started by the Westralian Farmers, Ltd., through L. J. Skipper, of the honey department. They began by loaning these tanks, but complications arose in some small stores selling and the new owners claiming the tanks as their property.

Tanks hold approximately ninety pounds and are fitted with gauge glass to show the level of the contents and have 1½-inch honey gates. A show card is also provided, setting out some of the food values of honey, stating price per pound (7d) and asking customers to bring their own containers. A "service" car calls regularly on all the stores that have these tanks within a distance of twenty-four miles and keeps the tanks in good order, the honey clear, the show card clean, and at the same time the man carries an assorted stock of various other styles of packages, such as frozen honey, chunk honey, and jars and tins of all sizes.

It is calculated that these tanks sell between two and three thousand cans of honey per season.

Another line which is being pushed by Australian Farmers, Ltd., is "Frozen Honey." This is candied honey, sold in pound blocks and wrapped in different colors of paper. During the summer it is kept in the freezing chamber, where it gets hard as a rock. Some of the city cake shops make a specialty of it.

Wintering of Bees

This is the title of a 20-page bulletin by Mr. Joseph Tinsley, F. E. S., of the West of Scotland Agricultural College, explaining the requirements for the wintering of bees. It is illustrated with thirteen cuts. The method of ascertaining the temperature of the cluster is shown, as well as the different methods of sheltering colonies of bees for winter. The price is sixpence. It is a useful bulletin.

Honey Exports

A monthly report of the Department of Commerce for the month of August, 1928, covering exports of honey, shows that there was a total of extracted honey exported during August of 1,738,000 pounds. Of this, 1,269,000 pounds were shipped to Germany and 252,000 to the United Kingdom. All of the balance was shipped to northern European countries.

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SUPERIOR Two-Frame Reversible Extractors

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Cappings Extracting Baskets for reversible extractors will fit any make or size of Reversible Extractor.

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Honey Storage Tanks at surprisingly low prices.

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We are putting on the market for 1929 our COOLSMOKE Bee Smokers, which will please the practical Beekeeper both in price and design.

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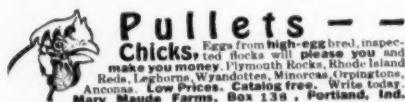
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Herman McConnell
(The Bee and Honey Man)
Robinson, Route 2, Illinois

The Savage and the Bee

By Fred R. Sale

I doubt very much if the American bee farmer, with such a vast number of the most modern appliances to select from, ever gives a thought to his less fortunate brethren in other parts of the world. The scientific aids employed by the apiculturist in our country contrasts so vividly with the methods employed by some of the savage races of Australia that I am sure they are worthy of record.

Some ten months ago, being a member of an expedition whose primary interest was a survey of the mineral wealth of western Australia, I had the opportunity of seeing the aborigine in his many strange activities, not by far the least of which was the astonishing methods used to obtain honey.

Honey is greatly valued by these strange people and they display great ingenuity in procuring it.

When a native observes a bee around the flowers, he makes for the nearest water pool or stream and selects a position where the bank slopes gradually. He lies on his face, fills his mouth with water, then patiently awaits the advent of the bee. The bee, he knows, needs a certain amount of water. Upon this fact the savage relies to secure his supply of honey.

The hunter, hearing the approach of the bee, holds his breath and is careful not to alarm the insect. At last the bee alights, the native blows the water from his mouth, temporarily stunning his quarry. He then seizes the bee and by means of gum obtained from the bark of a tree he attaches a small tuft of white down to its body. As soon as it is released the insect flies away towards its hive with the hunter in close pursuit. These natives are very agile and make light of any obstacles which might be in the way. He leaps over tree trunks which often lie across his path. If he falls, he jumps up and continues the chase, because he knows the bee is hampered by the burden it carries and that it will fly in a straight line. The native eventually tracks the bee to its lair, and his persistence is rewarded.

Having found the nest, the Australian native loses no time in ascending to the spot, sometimes in the hollow of a tree, other times in the cleft of a rock. He takes with him a hatchet, a basket and a quantity of dried grass. Then, under cover of the smoke from the grass which he sets alight, he chops away the wood or rock until he can get at the combs, which he places in the basket.

In many cases the native sits down

on the ground nearby and begins his feast. As the bees are not forced to keep their honey cells apart from the cells containing the hoard and beebread, the native eats all, bee grubs, honey, and beebread, relishing all the contents of the combs.

Carotin: A Pigment of Honey

A copy of a reprint from the Journal of the American Chemical Society, carrying this title, has been sent us by the author, Prof. H. A. Schuette, of the Department of Chemistry, University of Wisconsin.

A highly pigmented honey was studied to determine the nature of its coloring matter. At least one of the pigments was determined as carotin, which is found widely distributed in nature—animal fat, blood serum, green leaves, carrots, beets, to give a few examples.

Its probable function in flowers and fruits is to act biologically as a lure for insects, birds and other animals in connection with the spreading of pollen. It is a crystalline substance, concerning whose food value we know perhaps little.

In a letter concerning his work Professor Schuette remarks: "It is an interesting fact that there has been brought up from time to time the suggestion that carotin and vitamin A have some association. It is fairly well established now that carotin is not identical with vitamin A, yet there appears to be a fairly definite correlation between the occurrence of this pigment and vitamin A in plant tissues. Some nutrition experts hold to the opinion that as between white corn and yellow corn the more highly pigmented yellow corn is superior for feeding purposes, and this is why, I suspect, a relationship was thought to exist between carotin and vitamin A."

"The food value of honey has not been thoroughly investigated with respect to its color. By this I mean to say that we do not know whether the more deeply colored honeys are superior to the lighter colored ones from a nutritive standpoint. It is an established fact, however, that the nature of the sugars in honey makes it one of our most readily digestible carbohydrate foods."

Recipes

The "American Independent Baker" of November 23 contains a number of recipes of honey cakes, honey nuts, etc., taken from "The Twentieth Century Book for the Progressive Baker," published by Fritz L. Gienendt, Boston, Massachusetts. The repeated publication of such recipes is bound to help the sale of honey.

Are "Black Robbers" Result of Bacterial Infection?

Our knowledge of the condition known as "black robbers," and in German-speaking lands as **Schwarzsucht**, or **Waldkrankheit**, (on account of its prevalence during the tree honeydew flow) is gradually increasing. Dozent Oswald Muck, in the *Archiv für Bienenkunde* (Germany, Vol. IX, Part 3, 1928), describes his recent work on this disease. He finds that it is due to the combined action of two different species of bacteria, neither of which, if fed to bees alone in pure culture, can produce the signs usually seen—loss of hair on the affected bees, and their death in considerable numbers before the hive.

A different opinion appears to be held by Dr. O. Morgenthaler, of Berne, Switzerland, who has also had much occasion to study the disease. Speaking at the *Apis Club* conference, he said that he had investigated the diseased bees bacteriologically and had found many interesting bacteria, but did not have the impression that the disease was infectious.

It is interesting to recall that Cheshire (*Bees and Beekeeping*, London, 1886-7) described a very similar disease, from which he isolated a bacillus which he named **Bac. gaytoni**, or **Bac. depilans**. Malden (Rept. on I. O. W. Bee Disease, Suppt. Journal Bd. of Agric., No. 8, 1912, page 136, suggested the possibility that **B. gaytoni** may possibly be identical with **B. pestiformis apis**, isolated by him from cases of "Isle of Wight disease."

A. D. B.

Master Farmer a Bee Man

According to the North Dakota News-Letter, Mr. John Q. Wieland, a beekeeper of Dazey, North Dakota, has recently been awarded the title of Master Farmer by the "Farmer" of St. Paul, Minnesota. Much interest has been aroused in the master farmer awards in the various states, but, so far as we know, Mr. Wieland is the first beekeeper to receive such an award.

Pumpkins for Late Pollen

I think it was in July that a beekeeper wanted something for late pollen.

Pumpkins will furnish lots of pollen and will keep on blooming till they freeze up. Plant them between corn every eighth hill square and they do well and we get plenty of them for cows and hogs.

Joe Legner.

George L. Lott

J. W. Newton

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BIRDS OF THE WILD

[HOW TO MAKE YOUR HOME THEIR HOME]

By FRANK C. PELLETT

Author of "Our Backdoor Neighbors," "American Honey Plants," etc.

A book of absorbing interest to the bird lover who wishes to attract the feathered friends to his home garden.

The author, through his inherent love of birds, has watched their habits, encouraged them to take up their abode with him, and studied them closely for the past twenty years under circumstances and surroundings which fall to the lot of few writers.

Birds are quick to respond to the invitations of those who recognize their needs, and even though one lives on a small lot in town, he can do something to make the place attractive to some kind of bird. This book tells how in a delightfully interesting manner.

128 pages, extensively illustrated with halftone reproductions from the author's own intimate photographs

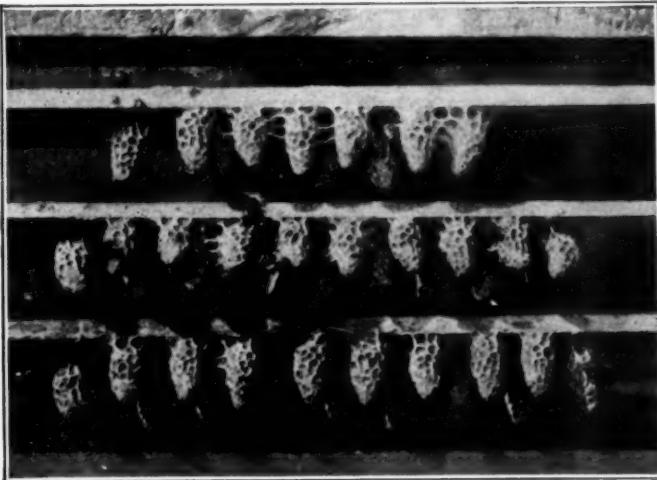
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Propolis Poisoning

Two enquiries come to us from England today on this subject. Here is what we have in the American Bee Journal in 1918 on this matter:

May, 1918, page 170. Question: I get poisoned with propolis. My eyes swell shut. I have fever and in a few days I feel like I had been sunburned. My skin peels off a dozen times or more from one poisoning. I even get poisoned from dust from scraping honey boxes. I sometimes get so sick it affects my heart. Can you tell me of a remedy?

Missouri.

Answer by Dr. C. C. Miller: I think it is more or less a common thing that beekeepers are troubled with the dust of propolis when scraping sections, although a good many of them may not know it. Their eyes smart and their nose troubles them, but they think it is only a bad cold. There are, however, a few to whom it is a real affliction, as it is in your case. I am very sorry to say I know of no remedy, but am glad to put the matter before beekeepers thus publicly, and if anyone knows of a remedy, or even a palliative, he will be doing a public benefit if he will tell about it.

June, 1918, page 202. Propolis poisoning. By Dr. A. F. Bonney: In the American Bee Journal for May, Dr. Miller discusses poisoning by propolis, and calls for a remedy.

There are many plants the pollen from which causes disorders in the human, as ragweed, which is accused of producing hay fever; poison ivy, which does cause serious irritation, and "Missouri," to whom Dr. Miller replies, has symptoms very like those produced by this plant. In the deserts of Arizona I formerly encountered a plant called locally "the sneeze weed," the invisible pollen from which, even at the distance of a mile or more, if there was the slightest breeze, would irritate the nasal passages to such an extent that violent sneezing followed and persisted, but there was no further trouble.

There are other plants the pollen of which causes an irritation similar to that caused by the ivy, but they are so rare that I am inclined to think that "Missouri" had a case of ivy poisoning through propolis gathered by the bees. However, it is very seldom that this can occur, and we may never hear of another case. As to a remedy, my experience with ivy poisoning has been liberal, and the very best remedy is a mixture of camphor with alcohol with an addition of 5 per cent of glycerine. The new U. S. P. formula for spirits of camphor must be used. The old

formula contained 50 per cent of water.

As an ounce of prevention is better than a ton of cure, in cases like this, I have prevented the Rhus poisoning (my patients were woodchoppers and others who were obliged to be in the woods) by having them smear the skin with a 2½ per cent carbolic acid (phenol) ointment. This serves a double purpose—the phenol is a powerful antiseptic, the vaseline of the ointment protects the skin.

If the camphor fails to give relief, "Missouri" might try a weak solution of sugar of lead.

Wanted: Volunteer Bee Master for Labrador

(From the Scottish Beekeeper)

We, in Edinburg, have been privileged to hear Sir Wilfred Grenfell's lectures on Labrador and to see his pictures and "movies" depicting the wonderful land for which he has done so much. He has had most liberal and fruitful help from doctors, oculists, dentists, nurses, welfare workers, teachers, engineers and other scientists who have spent furloughs there and have, fascinated by its strange problems, been able to do great things for the relief and helping of its people.

Sir Wilfred made last year an experiment with bees imported from Canada and feels greatly in need of expert advice. He is quite anxious that some sportsman who is an experienced beekeeper should spend his holiday there and help to establish small apiaries. The large expanses of flowering plants should give great honeyflows, were there but bees to gather the nectar. The sportsman would find caribou (though the season only begins in September), with black bear, and even the off-chance of a polar bear, also seals, for his gun, while salmon fishing begins in July, with sea and river trout in the lakes and rivers.

The expenses would not be excessive. Particulars of these can be had from Sir Wilfred Grenfell, 82 Victoria street, Westminster, S. W. 1.

John W. Moir.

Sales of Honey Reported in Baking Magazine

In the November 2 issue of the "American Independent Baker," page 12, is a report given of honey sales, until lately an unusual thing in a publication of this kind. It is largely taken from the American Bee Journal, but it shows the interest of the baking industry in honey.

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